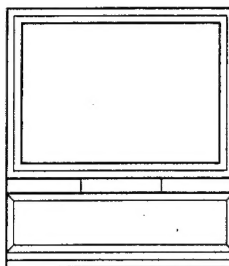


# Service Manual

 **PIONEER®**  
The Art of Entertainment



ORDER NO.  
ARP2936

## PROJECTION MONITOR RECEIVER **PRO-119** **PRO-99**

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model		Power Requirement	Remarks
	PRO-119	PRO-99		
KUXC	○	○	AC120V	

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# 1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.



## WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.



## NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

## REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

## 1.1 SAFETY PRECAUTIONS

NOTICE: Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis or picture tube.

The following precautions should be observed:

1. Do not install, remove, or handle the picture tube in any manner unless shatterproof goggles are worn. People not so equipped should be kept away while picture tubes are handled.  
Keep picture tube away from the body while handling.
2. When service is required, even though the PROJECTION MONITOR RECEIVER an isolation transformer should be inserted between power line and the set in safety before any service is performed.
3. When replacing a chassis in the set, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistor-capacitor, etc.
4. When service is required, observe the original lead dress.  
Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
5. Always use the manufacturer's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's.  
Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.

6. Before returning a serviced set to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the set by the manufacturer has become defective, or inadvertently defeated during servicing.  
Therefore, the following checks should be performed for the continued protection of the customer and service technician.

### Leakage Current Cold Check

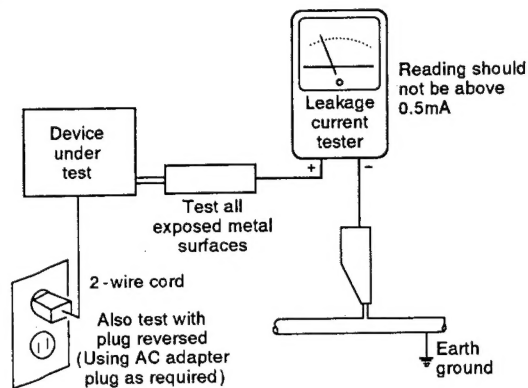
With the AC plug removed from the 120V AC 60Hz source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (input/output terminals, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of  $0.3M\Omega$  and a maximum resistor reading of  $5M\Omega$ . Any resistor value below or above this range indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.



### Leakage Current Hot Check

Plug the AC line cord directly into a 120V AC 60Hz outlet (do not use an isolation transformer for this check). Turn the AC power switch on.

Using a "Leakage Current Tester (Simpson Model 229 equivalent)", measure for current from all exposed metal parts of the cabinet (input/output terminals, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 0.5mA.



AC Leakage Test

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE SET TO THE CUSTOMER.**

### High Voltage

This set is provided with a X-ray protection for clearly indicating that voltage has increased in excess of a predetermined value. Comply with all notes described in this Service Manual regarding this hold down circuit when servicing, so that this X-ray protection may correctly be operated.

### Serviceman Warning

In the status of the black picture (video muting is being applied) when no signal is input, high voltage of this set during operation is less than 30.5kV. In case any component having some relation to the high voltage is replaced, confirm that the high voltage is lower than 30.5kV in the status of the black picture when no signal is input.

To measure H.V. use a high impedance H.V. meter.

Connect (-) to earth and (+) to the FBT anode cable connector. (Refer to page 132.)

### X-radiation

**TUBE:** The primary source of X-radiation in this set is the picture tube.

For continued X-radiation protection, the replacement tube must be the same type as the original, PIONEER approved type.

The picture tube (CRT assy R, G, B) used in this set holds complete guarantee against X-ray radiation when the X-ray is sealed (See page 4). Accordingly, when the current in flowing to the picture tube (CRT assy R, G, B), be sure to perform it by putting the tube into X-ray sealed applied state. Avoid absolutely to flow the current to the picture tube (CRT assy R, G, B) itself. Moreover, when the voltage of the high voltage circuit becomes abnormally a little higher, the picture tube radiates X-rays. Accordingly, when servicing the high voltage circuit be sure to replace as an assy with the POWER SUPPLY assy in the manner in which has been adjusted to perform normal operation.

## 1.2 PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in PIONEER set have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a  $\Delta$  on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, X-radiation, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of PIONEER Service Manual may be obtained at a nominal charge from PIONEER.



### 1.3 CHARGED SECTION, HIGH VOLTAGE GENERATING POINT AND X-RAY PROTECTION

#### ■ Charged section

The circuit in which the commercial AC power is used as it is without passing through the power supply transformer. If the charged section is touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. In this case, be sure to connect the set via an insulated transformer and supply the current.

#### ■ Charged section (Power supply primary side)

1. The primary side of the POWER SUPPLY assy
2. AC power cord
3. MAIN SW assy

 part is the charged section.  
 part is the high voltage generating points other than the charged section

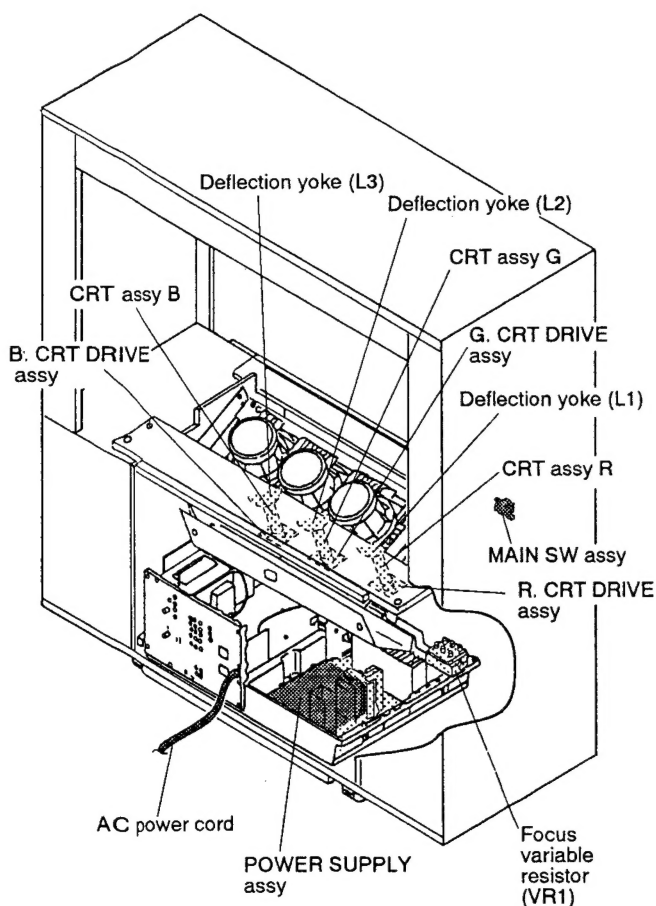


Fig. 1 Charged section and high voltage generating point

#### ■ High voltage generating point

The place where voltage of over 100V is generated.

1. Charged section
2. POWER SUPPLY assy (including FBT) (30.5kV, 135V)
3. R. CRT DRIVE assy (10.5kV)
4. G. CRT DRIVE assy (10.5kV)
5. B. CRT DRIVE assy (10.5kV)
6. CRT assy R (30.5kV)
7. CRT assy G (30.5kV)
8. CRT assy B (30.5kV)
9. Focus variable resistor (VR1) (10.5kV)
10. Deflection yokes (L1, L2, and L3) (Approx. 1100V at peak)

#### ■ X-ray protection

- Regarding the parts which are relative to radiation of X-rays (There is the danger to radiate X-ray from the individual CRT assy R, G, B), there are notifications of caution in the individual schematic diagrams. Be sure to read them for safety's sake.
- The component parts for X-ray protection are as follows :When the current flows to the CRT assy R, G, B, be sure to perform it with these parts being attached. Protection from the X-ray radiation is maintained in the state in which these parts have been installed to the CRT assy R, G, B. Accordingly, never supply current only to the CRT assy R, G, B. Moreover, the anode voltage of the CRT assy R, G, B should always be kept not higher than the predetermined value (in the minimum brightness and picture state when non signal input is higher than 30.5kV). Be sure to drive the CRT assy R, G, B by using a completely functional POWER SUPPLY assy which have been adjusted completely in the combined state. (When the voltage abnormally becomes high, the X-ray protection circuit will operate.)

1. CRT assy R, G, B (Do not dismantle CRT assemblies under any circumstances).
2. Each Lens assy

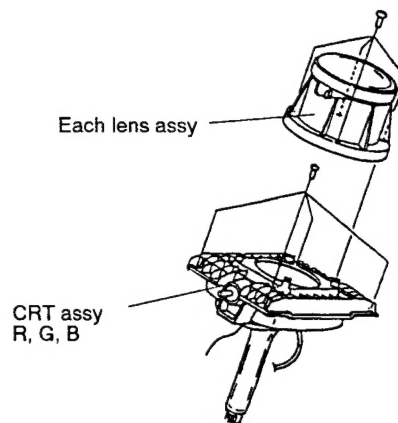
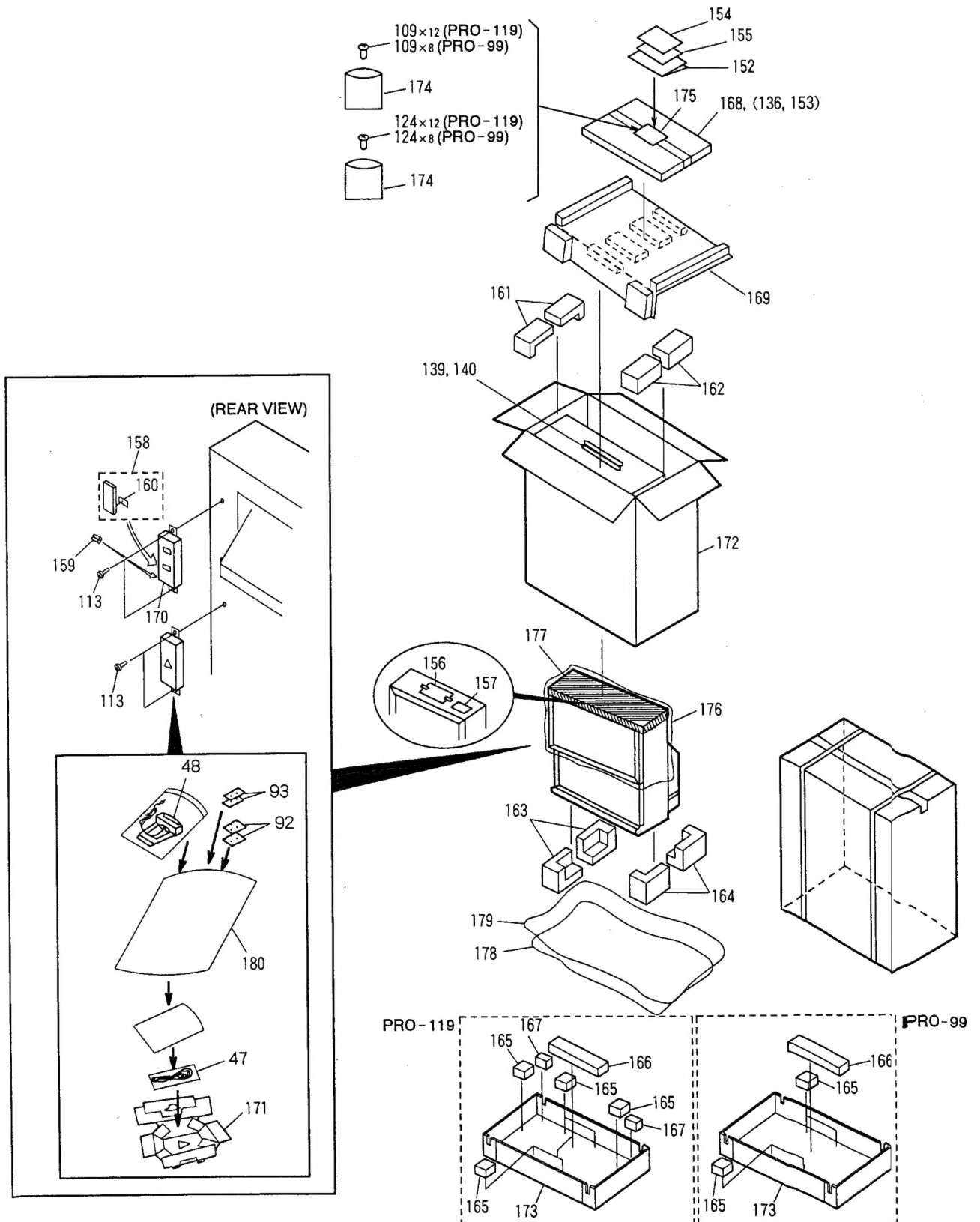


Fig. 2 Component parts for X-ray protection

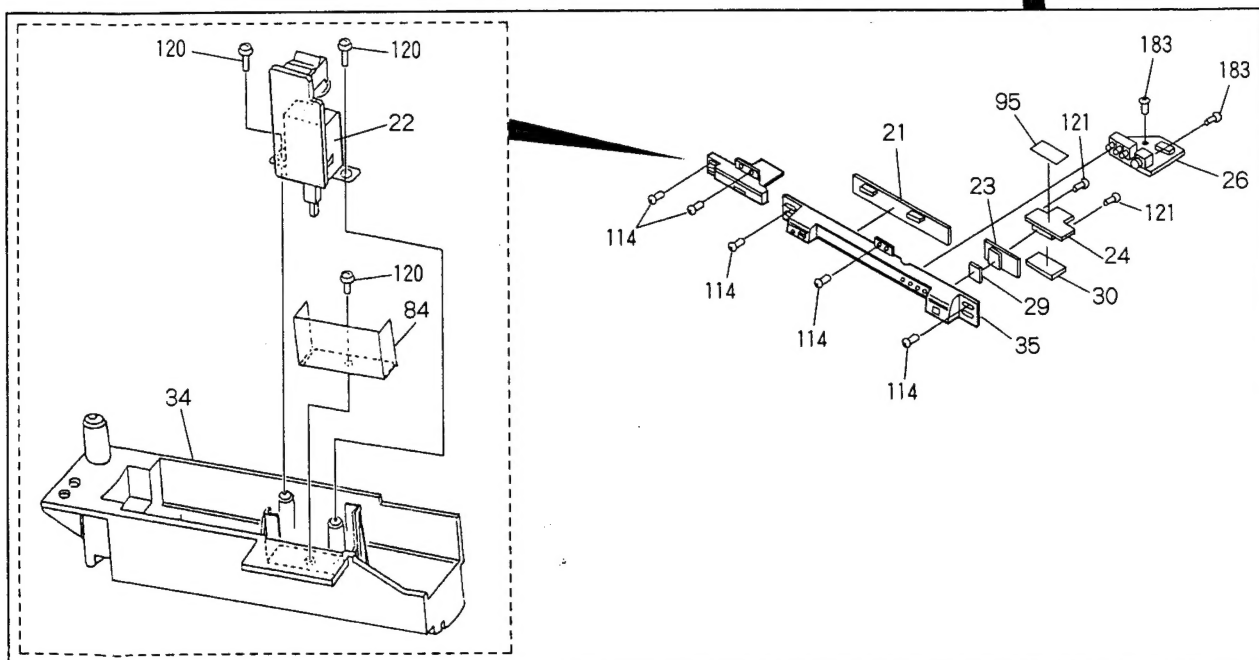
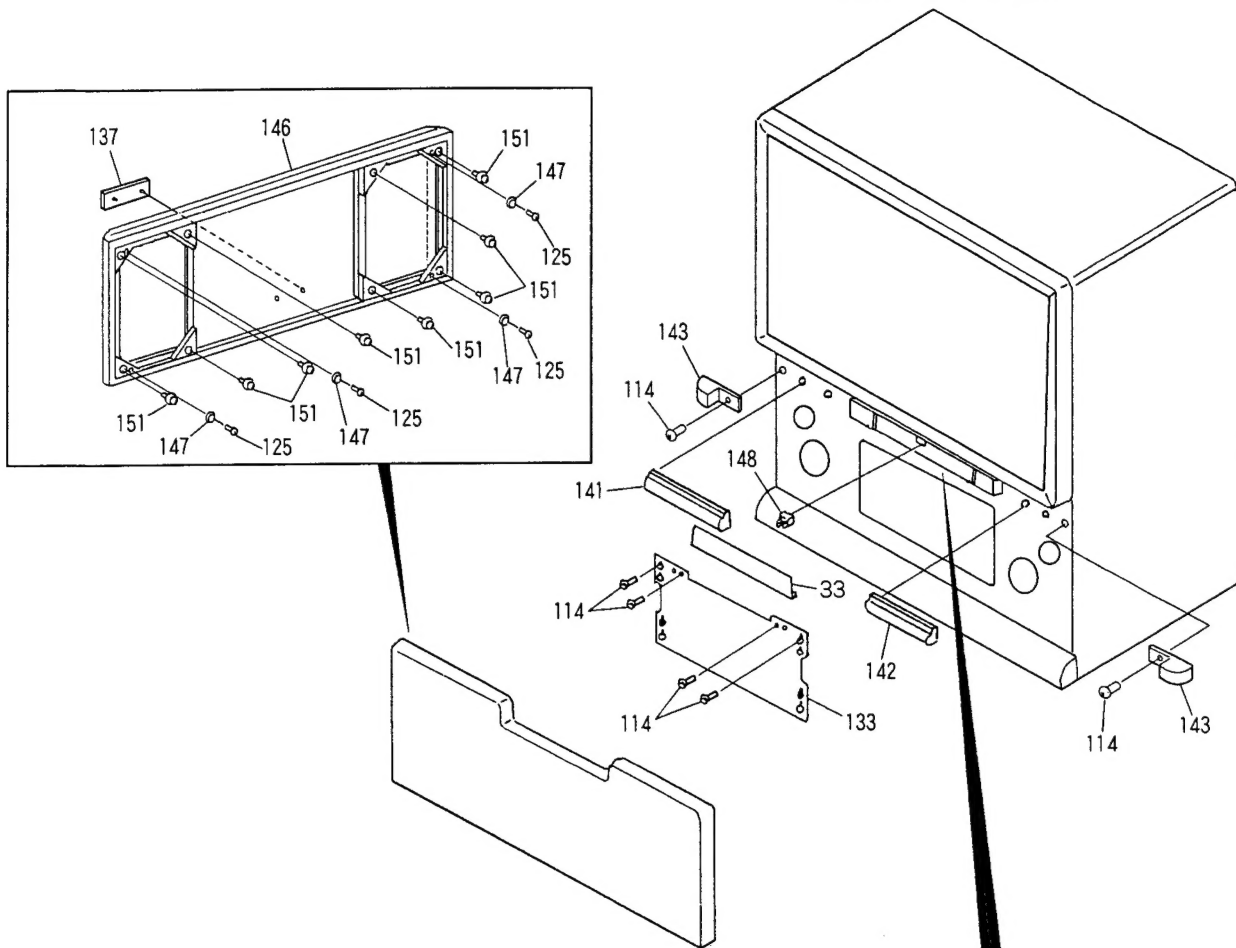
## 2. EXPLODED VIEWS AND PARTS LIST

### 2.1 PACKING

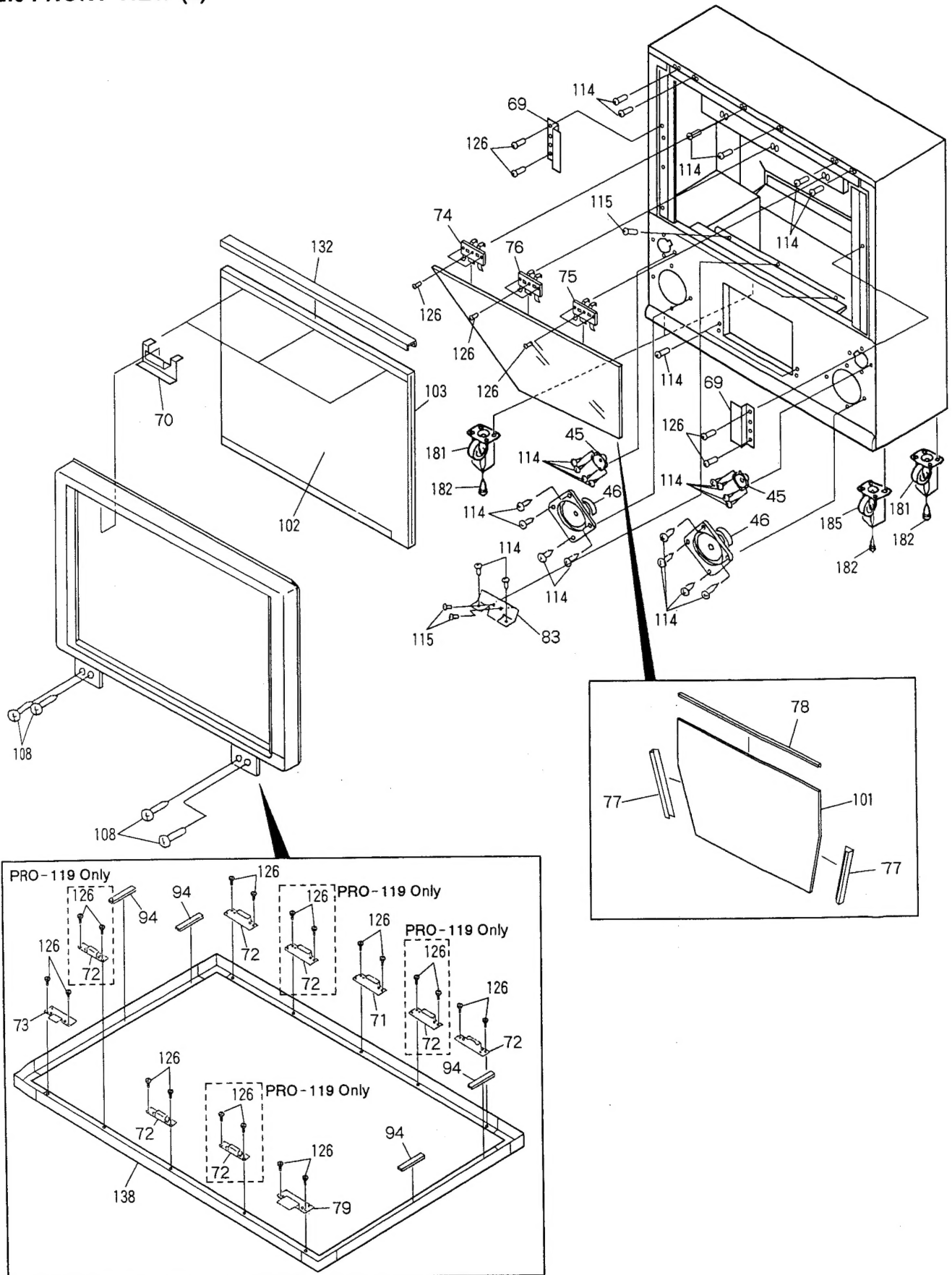


## 2.2 FRONT VIEW (1)

NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.

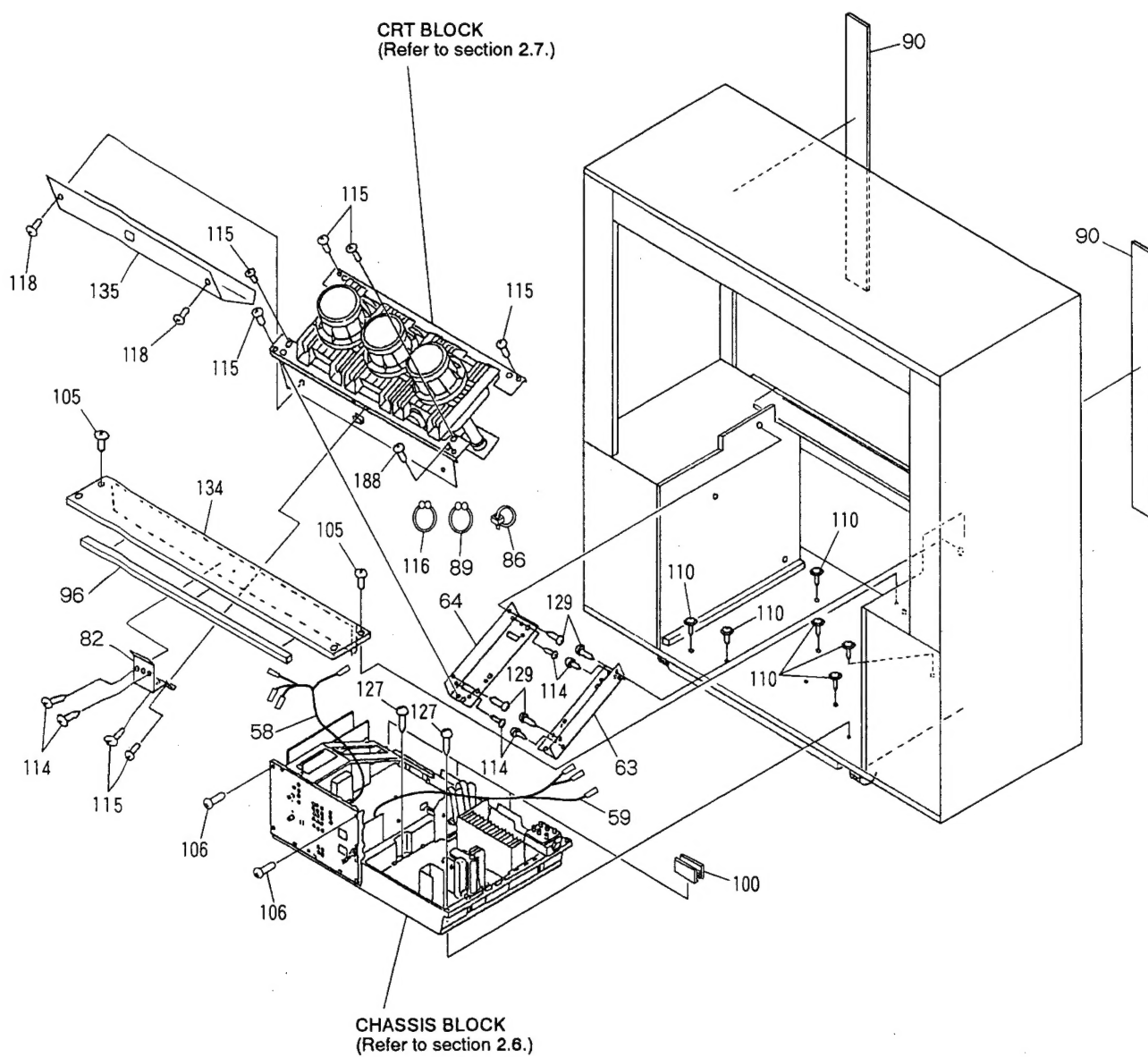


## 2.3 FRONT VIEW (2)

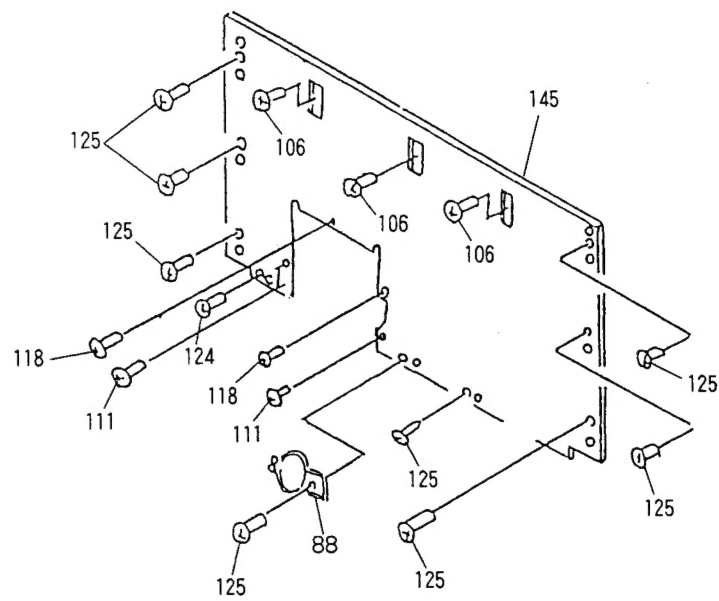
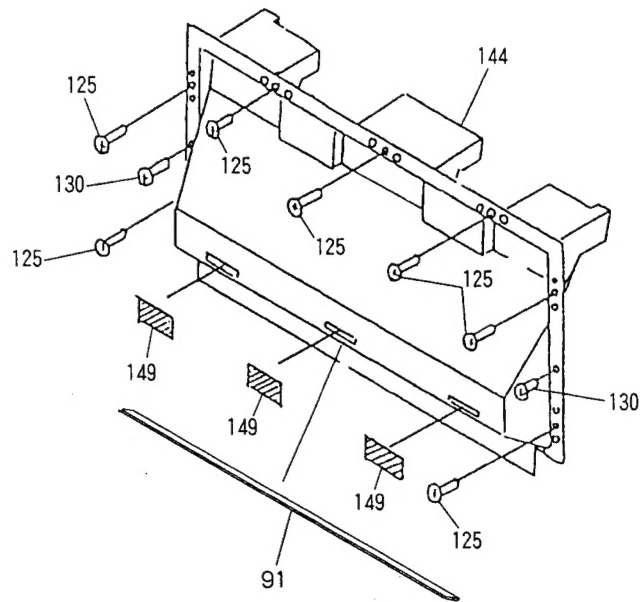


# PRO-119, PRO-99

## 2.4 REAR VIEW (1)



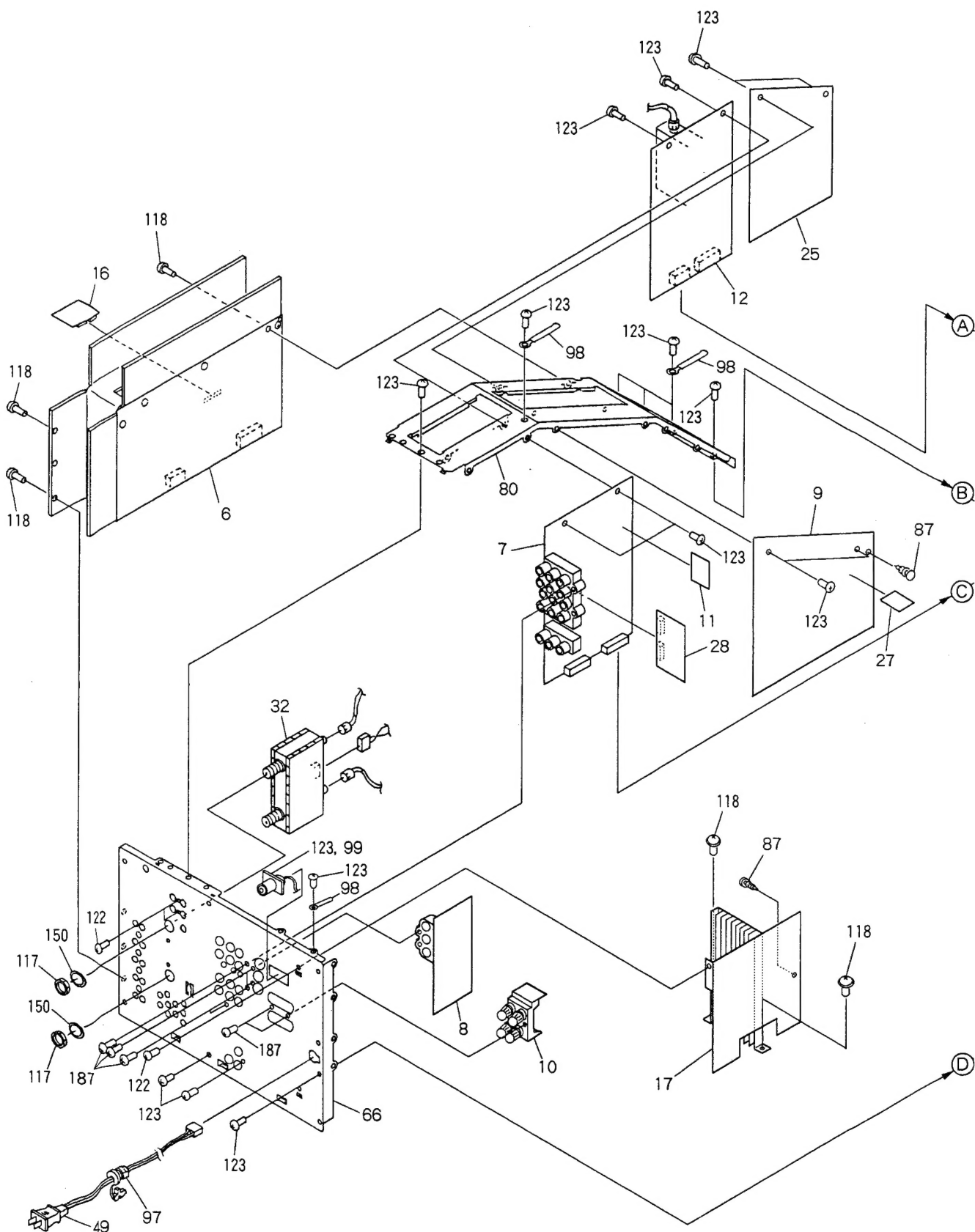
2.5 REAR VIEW (2)

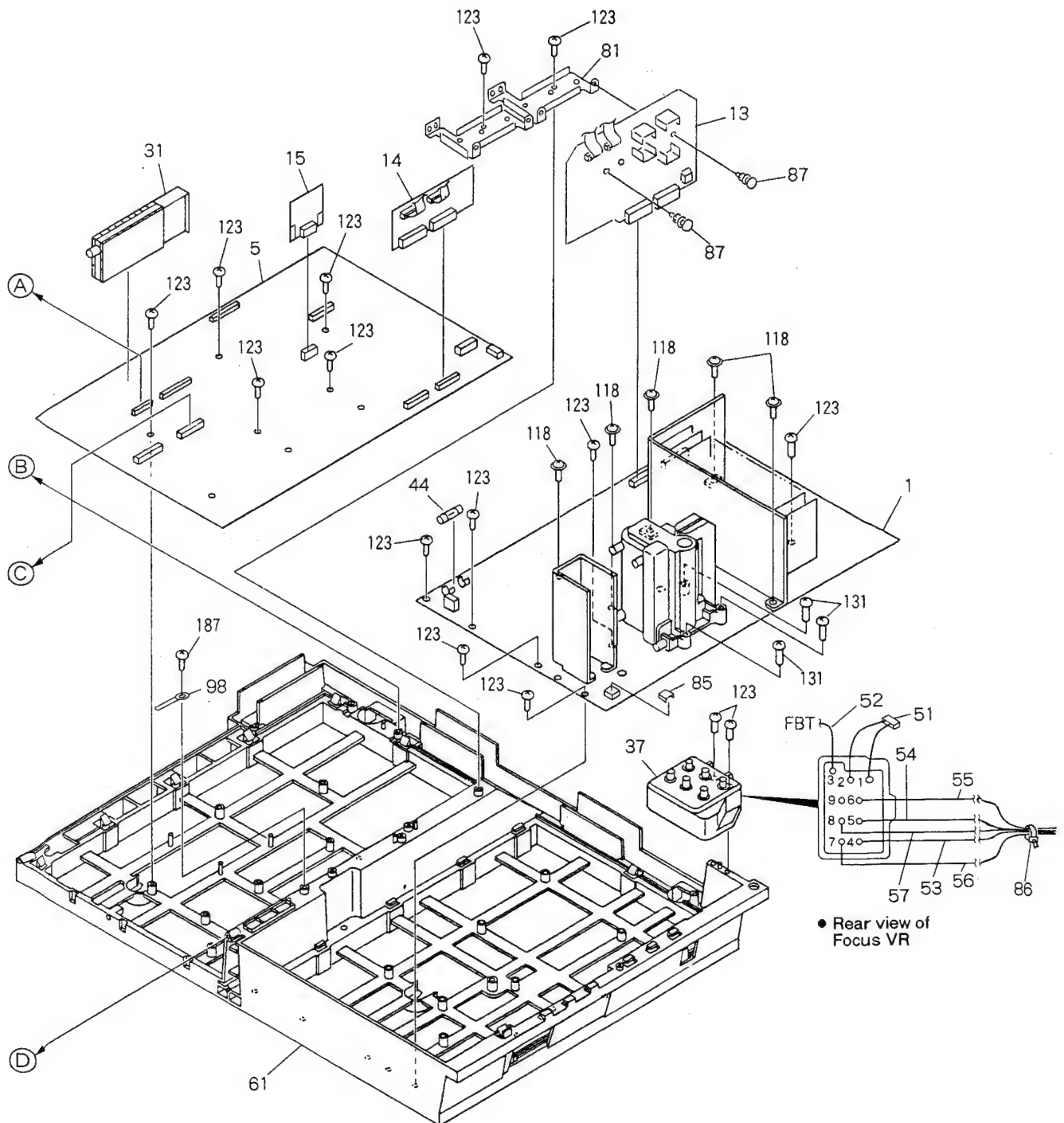




**PRO- 119, PRO- 99**

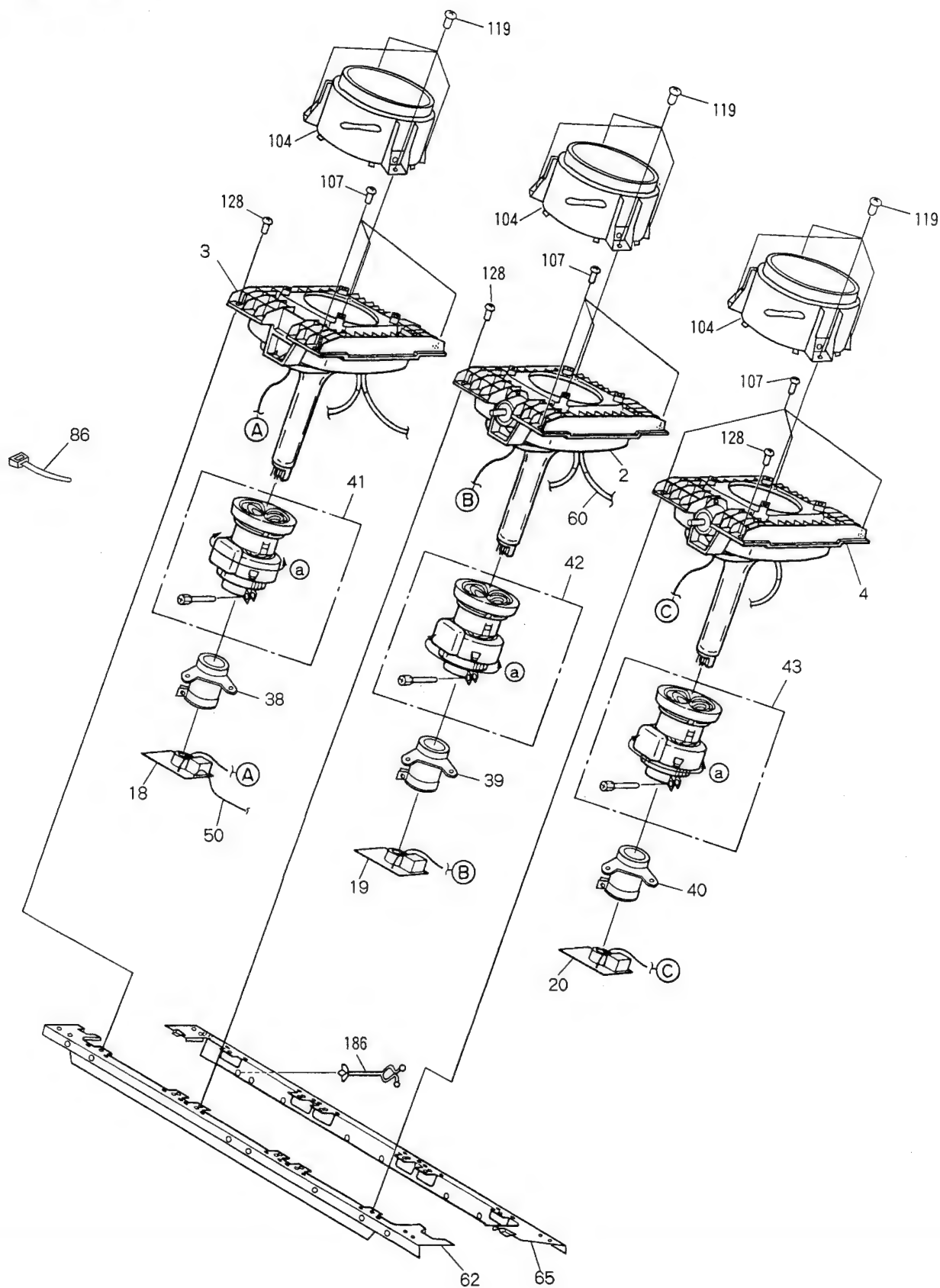
## 2.6 CHASSIS BLOCK





**PRO- 119, PRO- 99**

## 2.7 CRT BLOCK



## 2.8 PARTS LIST

NOTES : ● Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.

● The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

● Parts marked by ☆ are important parts which relate to X-rays radiation. If any of these parts need to be replaced, always replace with specified parts.

● For POWER SUPPLY ASSY, AWV1558 is used, but for servicing, AWV1565 is supplied.

AWV1565 is the same as AWV1558 of which X-ray protection and high voltage sections have been adjusted and these adjusted parts are covered with the shield cases. Therefore, AWV1565 need not be adjusted.

## (1) Parts List for PRO-119/KUXC

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
☆	1	POWER SUPPLY ASSY	AWV1565	$\Delta$	40	VM COIL(L6)	ATL1123
☆	2	CRT ASSY(G)	AWY1364	$\Delta$	41	DEFLECTION YOKE(L1)	ATL1127
☆	3	CRT ASSY 60(R)	See Contrast Table(2)	$\Delta$	42	DEFLECTION YOKE(L2)	ATL1127
☆	4	CRT ASSY 60(B)	See Contrast Table(2)	$\Delta$	43	DEFLECTION YOKE(L3)	ATL1127
				$\Delta$	44	FUSE(FU102:500mA/125V)	AEK1010
	5	TUNER-VIDEO ASSY	AWV1559		45	CONE SPEAKER(TWEETER)	APT1004
	6	CONVERGENCE ASSY	AWZ6098		46	CONE SPEAKER	APV1021
	7	AV I/O ASSY	AWZ6099		47	MINI REPEATER	ADF1002
	8	Y/C SELECTOR ASSY	AWZ6100	$\Delta$	48	MAIN REPEATER	AXF7001
	9	P IN P ASSY	AWZ6101		49	AC POWER CORD	BDG1019
	10	EXT SP ASSY	AWZ6102	$\Delta$	50	VM WIRE HARNESS(J13)	ADX2229
	11	B CONNECTOR ASSY	AWZ6103		51	4P HOUSING WIRE(J2)	ADX2230
	12	ISC ASSY	AWZ6104		52	1P LEAD WIRE(J3)	ADX2231
	13	VM ASSY	AWZ6105		53	1P LEAD WIRE(J4)	ADX2232
	14	A CONNECTOR ASSY	AWZ6106		54	1P LEAD WIRE(J5)	ADX2233
	15	FULL CINEMA MUTE ASSY	AWZ6107		55	1P LEAD WIRE(J6)	ADX2236
	16	FULL CINEMA CONVER ASSY	AWZ6108		56	1P LEAD WIRE(J7)	ADX2237
	17	AUDIO ASSY	AWZ6109		57	1P LEAD WIRE(J8)	ADX2238
	18	R.CRT DRIVE ASSY	AWZ6110		58	WIRE HARNESS	ADX2256
	19	G.CRT DRIVE ASSY	AWZ6111		59	8P HOUSING WIRE(J12)	ADX2257
	20	B.CRT DRIVE ASSY	AWZ6112	$\Delta$	60	ANODE CABLE(J1)	ADY1012
	21	FRONT CONTROL ASSY	AWZ6113	NSP	61	CHASSIS	AMA1011
	22	MAIN SW ASSY	AWZ6114	NSP	62	CRT FRONT FRAME(60)	See Contrast Table(2)
	23	IR RECEIVER ASSY	AWZ6115		63	CRT STAND HOLDER(L)	ANA1516
	24	SUB RECEIVER ASSY	AWZ6116		64	CRT STAND HOLDER(R)	ANA1517
	25	3D Y/C ASSY	AWZ6117	NSP	65	CRT REAR FRAME(60)	See Contrast Table(2)
	26	FRONT INPUT ASSY	AWZ6118		66	REAR PANEL	ANC2279
	27	D CONNECTOR ASSY	AWZ6119		67	.....	
	28	PINP SELECTOR ASSY	AWZ6120		68	.....	
	29	RECEIVER ELEMENT ASSY	AWZ6073		69	SCREEN SIDE FITTING	ANG1993
	30	RECEIVER CIRCUIT ASSY	AWZ6074	NSP	70	UPPER CABINET METAL	ANG2000
	31	TV FRONT END SYSTEM UNIT	AXF1084	NSP	71	UPPER SCREEN METAL A	ANG2001
	32	RF SWITCH	AXF1086	NSP	72	UPPER SCREEN METAL B	ANG2002
	33	DOOR ASSY	AAN1413				
	34	SUB PANEL ASSY	AMB2556				
	35	FRONT PANEL ASSY	AMB2596	NSP	73	UNDER SCREEN METAL A	ANG2003
	36	SCREEN HOLDER LOW60P	AAP1542	NSP	74	MIRROR UPPER STAY L	ANG2004
$\Delta$	37	FOCUS VR(VR1)	ACX1096	NSP	75	MIRROR UPPER STAY R	ANG2005
$\Delta$	38	VM COIL(L4)	ATL1123	NSP	76	MIRROR UPPER STAY C	ANG2006
$\Delta$	39	VM COIL(L5)	ATL1123	NSP	77	MIRROR FRAME V	See Contrast Table(2)

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Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	78	MIRROR FRAME H	See Contrast Table(2)		123	SCREW	BBZ30P140FZK
NSP	79	UNDER SCREEN METAL B	ANG2009		124	SCREW	BMZ40P100FZK
NSP	80	PCB FRAME	ANG2045		125	SCREW	BYC35P160FZK
NSP	81	PCB HOLDER H	ANG2056		126	SCREW	BYC40P160FMC
					127	SCREW	BYC40P350FZK
NSP	82	CRT REAR HOLDER	ANG2119		128	SCREW	FBT40P120FZK
NSP	83	CRT FRONT HOLDER	See Contrast Table(2)		129	SCREW	PMB50P200FZK
					130	SCREW	PYC40T140FZB
NSP	84	FRONT SHIELD	ANK1502		131	SCREW	VBZ30P200FMC
	85	SHIELD CASE	ANK1510		132	SCREEN HOLDER TOP 60	See Contrast Table(2)
	86	NYLON BINDER	AEC-093				
	87	RIVET	AEC-441		133	BLIND PLATE	AMM2577
NSP	88	CABINET WIRE HOLDER	AEC1263	NSP	134	BACK COVER PANEL	See Contrast Table(2)
	89	PURSE LOCK	AEC1540				
	90	SCREEN CUSHION 60P	See Contrast Table(2)	NSP	135	TRAY (PLS)	AMR2563
				NSP	136	ACRYLIC PANEL (60)	See Contrast Table(2)
	91	MIRROR CASE CUSHION	AEC1627				
	92	CLOTH MAGIC TAPE A	AEC1630		137	ELITE BADGE	AAM1076
	93	CLOTH MAGIC TAPE B	AEC1631		138	SCREEN FRAME ASSY(60)	See Contrast Table(2)
	94	FRAME CUSHION P	AEC1634				
	95	FRONT SHEET(PVC)	AEC1635		139	FRAME COVER ASSY(60)	See Contrast Table(2)
	96	BACK COVER CUSHION	See Contrast Table(2)		140	FRAME COVER V ASSY(60)	See Contrast Table(2)
	97	AC CORD STOPPER	AEP-113				
	98	BINDER	AEP-215		141	SIDE PANEL ASSY(60L)	See Contrast Table(2)
	99	BNC CAP	AMR2314				
	100	WIRE HOLDER	AMR2832		142	SIDE PANEL ASSY(60R)	See Contrast Table(2)
	101	MIRROR(60A)	See Contrast Table(2)		143	SIDE COVER	See Contrast Table(2)
	102	LENTICULAR SHEET 60	See Contrast Table(2)		144	MIRROR CASE (51)	AME2296
	103	FRESNEL (60)	See Contrast Table(2)		145	REAR COVER	AMM2582
					146	GRILLE (60)	See Contrast Table(2)
☆	104	LENS ASSY (60)	See Contrast Table(2)				
	105	SCREW	ABA1124		147	MAGIC TAPE	AEC1394
	106	SCREW	ABA1149		148	CATCHER F2M	AEC1609
	107	SCREW (STEEL)	ABA1168		149	BLIND SHEET(PVC)	AEC1622
					150	BUSHING	AEC1661
	108	M5 SCREW	ABA1189	NSP	151	CATCHER A	ANZ-241
	109	SCREW	ABA1226				
	110	SPECIAL SCREW	ABA1234		152	OPERATING INSTRUCTIONS (ENGLISH)	ARB1501
	111	SPECIAL SCREW	ABA1235		153	ACRYLIC CAUTION CARD	ARH1152
	112	.....		NSP	154	SAFEGUARD CARD	ARM1075
					155	ATTENTION CARD	ARM1108
	113	SPECIAL SCREW	ABA1239				
	114	SPECIAL SCREW	ABA1240		156	CONVER ATTENTION CARD	ARM1115
	115	SPECIAL SCREW	ABA1244		157	CASTER CAUTION CARD	See Contrast Table(2)
NSP	116	PURSE LOCK S	AEC1261				
	117	HEXAGONAL DUCT NUT	ABN-087		158	REMOTE CONTROL UNIT(CU-SD100)	AXD1425
				NSP	159	ALKALINE DRY CELL BATTERY (LR6, AA)	AEX1018
	118	SCREW	ABZ30P120FZK		160	BATTERY COVER	AZN7327
	119	SCREW	AMZ40P080FZK		161	UPPER PAD L	AHA2067
	120	SCREW	APZ30P080FZK		162	UPPER PAD R	AHA2068
	121	SCREW	APZ40P120FZK		163	UNDER PAD L	AHA2069
	122	SCREW	BBZ30P080FZK		164	UNDER PAD R	AHA2070
				NSP	165	CUSHION B	See Contrast Table(2)

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	166	CUSHION C	AHA2076	NSP	177	VINYL SHEET 60 UPPER	See Contrast Table(2)
NSP	167	CUSHION D	See Contrast Table(2)	NSP	178	VINYL SHEET 60 UNDER	See Contrast Table(2)
	168	CARDBOARD CASE (60)	See Contrast Table(2)	NSP	179	PACKING SHEET 60L	See Contrast Table(2)
	169	CARDBOARD SPACER(60)	See Contrast Table(2)	NSP	180	WRAPPER BAG A	AHG1236
	170	CU PACKING CASE	AHC1019		181	CASTER	AMR2547
	171	PACKING CASE A	AHC1024		182	SPECIAL SCREW	ABA1126
	172	UPPER CARTON (60P)	See Contrast Table(2)		183	SCREW	ABZ30P080FZK
				NSP	184	BNC SOCKET (CN1)	AKX1036
	173	UNDER CARTON (60P)	See Contrast Table(2)		185	CASTER	See Contrast Table(2)
NSP	174	WRAPPER BAG	AHG1076	NSP	186	LEAD CLAMPER M	AEC1611
NSP	175	LITERATURE BAG	AHG1222		187	SCREW	BBZ30P100FZK
NSP	176	PACKING SHEET(60)	See Contrast Table(2)		188	SCREW	ACZ40P080FMC

**(2) Contrast of PRO- 119/KUXC and PRO- 99/KUXC**

PRO- 119/KUXC and PRO- 99/KUXC have the same construction except for the following:

Mark	No.	Symbol & Description		Part No.		Remarks
		PRO- 119/KUXC	PRO- 99/KUXC	PRO- 119/KUXC	PRO- 99/KUXC	
☆	3	CRT ASSY 60(R)	CRT ASSY 51(R)	AWY1367	AWY1365	
☆	4	CRT ASSY 60(B)	CRT ASSY 51(B)	AWY1368	AWY1366	
NSP	62	CRT FRONT FRAME (60)	CRT FRONT FRAME (51)	ANA1515	ANA1513	
NSP	65	CRT REAR FRAME (60)	CRT REAR FRAME (51)	ANA1520	ANA1518	
NSP	77	MIRROR FRAME V	MIRROR FRAME V	ANG2007	ANG2084	
NSP	78	MIRROR FRAME H	MIRROR FRAME H	ANG2008	ANG2083	
NSP	83	CRT FRONT HOLDER	CRT FRONT HOLDER	ANG2120	ANG2121	
	90	SCREEN CUSHION 60P	SCREEN CUSHION 51P	AEC1623	AEC1621	
	96	BACK COVER CUSHION	BACK COVER CUSHION 60	AEC1656	AEC1626	
	101	MIRROR (60A)	MIRROR	AMR2739	AMR2852	
	102	LENTICULAR SHEET 60	LENTICULAR SHEET 51	AMR2752	AMR2751	
	103	FRESNEL (60)	FRESNEL (51)	AMR2844	AMR2845	
☆	104	LENS ASSY (60)	LENS ASSY	AMR2857	AMR2803	
	132	SCREEN HOLDER TOP 60	SCREEN HOLDER TOP 51P	AAP1502	AAP1525	
NSP	134	BACK COVER PANEL	BACK COVER PANEL	AMM2664	AMM2663	
NSP	136	ACRYC PANEL (60)	ACRYC PANEL (51)	AAK2633	AAK2632	
NSP	138	SCREEN FRAME ASSY (60)	SCREEN FRAME ASSY (51)	AAP1515	AAP1514	
	139	FRAME COVER ASSY (60)	FRAME COVER ASSY (51)	AAP1521	AAP1520	
	140	FRAME COVER V ASSY (60)	FRAME COVER V ASSY (51)	AAP1557	AAP1560	
	141	SIDE PANEL ASSY (60L)	SIDE PANEL ASSY (51L)	AMB2583	AMB2584	
	142	SIDE PANEL ASSY (60R)	SIDE PANEL ASSY (51R)	AMB2586	AMB2587	
	143	SIDE COVER	SIDE COVER	AMR2743	AMR2573	
	146	GRILLE (60)	GRILLE (51)	AMM2584	AMM2585	
	157	Not used	CASTER CAUTION CARD	Not used	ARM1117	
NSP	165	CUSHION B	CUSHION E	AHA2075	AHA2081	
NSP	167	CUSHION D	Not used	AHA2077	Not used	
	168	CARD BOARD CASE (60)	CARD BOARD CASE (51)	AHB1154	AHB1152	
	169	CARD BOARD SPACER (60)	CARD BOARD SPACER (51P)	AHB1162	AHB1172	
	172	UPPER CARTON (60P)	UPPER CARTON (51P)	AHD2837	AHD2838	
	173	UNDER CARTON (60P)	UNDER CARTON (51P)	AHD2843	AHD2844	
NSP	176	PACKING SHEET (60)	PACKING SHEET (50,45)	AHG1230	AHG1120	
NSP	177	VINYL SHEET 60 UPPER	VINYL SHEET XL	AHG1233	AHG1095	
NSP	178	VINYL SHEET 60 UNDER	VINYL SHEET MS	AHG1234	AHG1258	
NSP	179	PACKING SHEET 60L	PACKING SHEET	AHG1235	AHG1156	
	185	CASTER	CASTER	AMR2547	AMR2863	





### 3. SCHEMATIC DIAGRAMS

#### NOTE FOR SCHEMATIC DIAGRAMS

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST". (Type 5A)

2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.

#### 3. RESISTORS:

Unit: k: k $\Omega$ , M: M $\Omega$ , or  $\Omega$  unless otherwise noted.  
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.  
Tolerance: (F):  $\pm 1\%$ , (G):  $\pm 2\%$ , (K):  $\pm 10\%$ , (M):  $\pm 20\%$  or  $\pm 5\%$  unless otherwise noted.

#### 4. CAPACITORS:

Unit: p: pF or  $\mu$  F unless otherwise noted.  
Ratings: capacitor ( $\mu$  F) / voltage (V) unless otherwise noted.  
Rated voltage: 50V except for electrolytic capacitors.

#### 5. COILS:

Unit: m: mH or  $\mu$  H unless otherwise noted.

#### 6. VOLTAGE AND CURRENT:

or  $\leftarrow$  V :  
DC voltage (V) at no input signal unless otherwise noted.  
Value in ( ) is DC voltage at color bar signal input state.  
 $\leftarrow$  mA or  $\leftarrow$  mA :  
DC current at no input signal unless otherwise noted.

#### 7. OTHERS:

- or : Adjusting point.
- : Measurement point.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by  $\star$  are important parts which relate to X-rays radiation. If any of these parts needs to be replaced, always replace with specified parts.
- Parts marked by  $\times$  are important parts which relate to X-rays radiation. If a failure occurs in any of these parts, replace the printed circuit board assembly where the relevant part has already been adjusted as a working component. Do not replace the actual part itself. If any part marked by  $\times$  is replaced, there is danger of being exposed to X-rays.

#### 8. SCH - ON THE SCHEMATIC DIAGRAM:

- SCH- indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)

#### 9. SWITCHES (Underline indicates switch position):

MAIN SW ASSY

S3441 : MAIN POWER

FRONT CONTROL ASSY

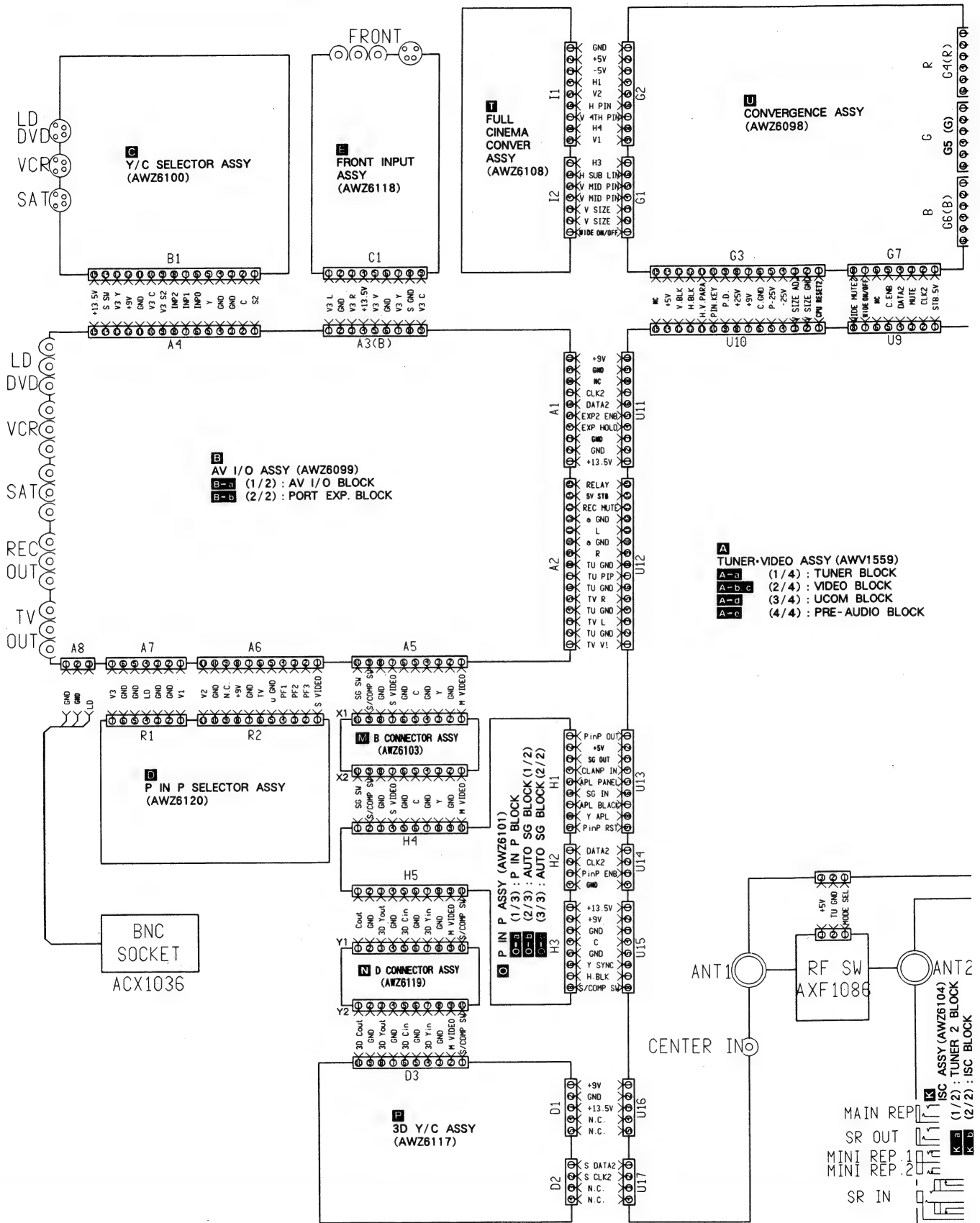
S3881 : CHANNEL -  
S3882 : INPUT SELECTOR  
S3883 : POWER STANDBY/ON  
S3884 : VOLUME +  
S3885 : VOLUME -  
S3886 : CHANNEL +  
S3887 : FACTORY ADJ  
S3888 : RETURN  
S3889 : SCREEN MODE  
S3890 : DIGITAL P IN P INPUT  
S3891 : DIGITAL P IN P ON/OFF  
S3892 : ANTENNA SELECTOR

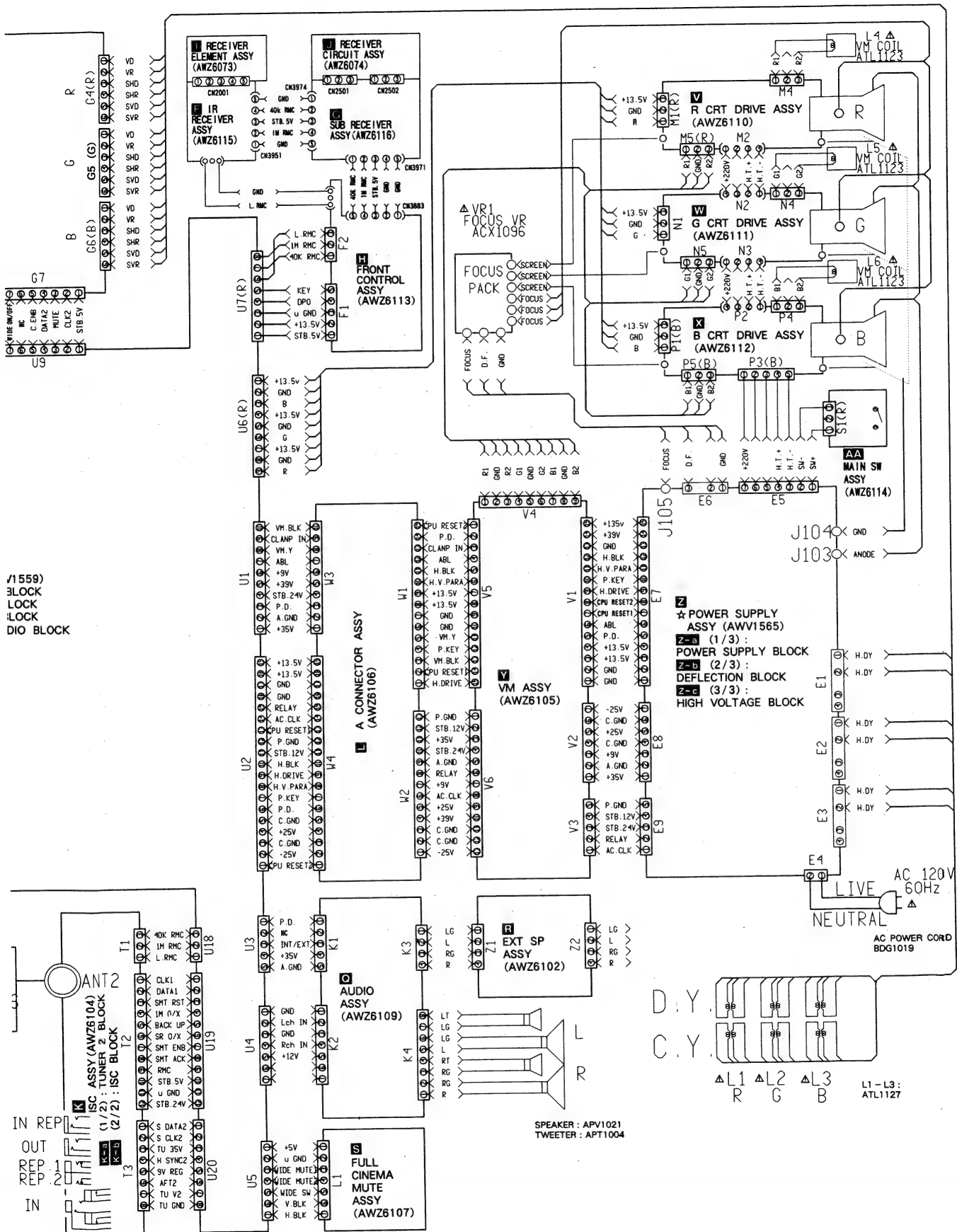
#### 10. SIGNAL ROUTE:

- : Video signal route
- : Audio signal route (L ch)
- (C) : Composite audio signal route
- : Y signal route
- : C signal route
- (M) : Video signal route (Main picture)
- (S) : Video signal route (Sub picture)
- (S) : Y signal route (Sub picture)
- (S) : C signal route (Sub picture)
- : H. deflection signal route
- : V. deflection signal route
- (R) : R-Y signal route
- (G) : G-Y signal route
- (B) : B-Y signal route
- (R) : R signal route
- (G) : G signal route
- (B) : B signal route

# PRO-119, PRO-99

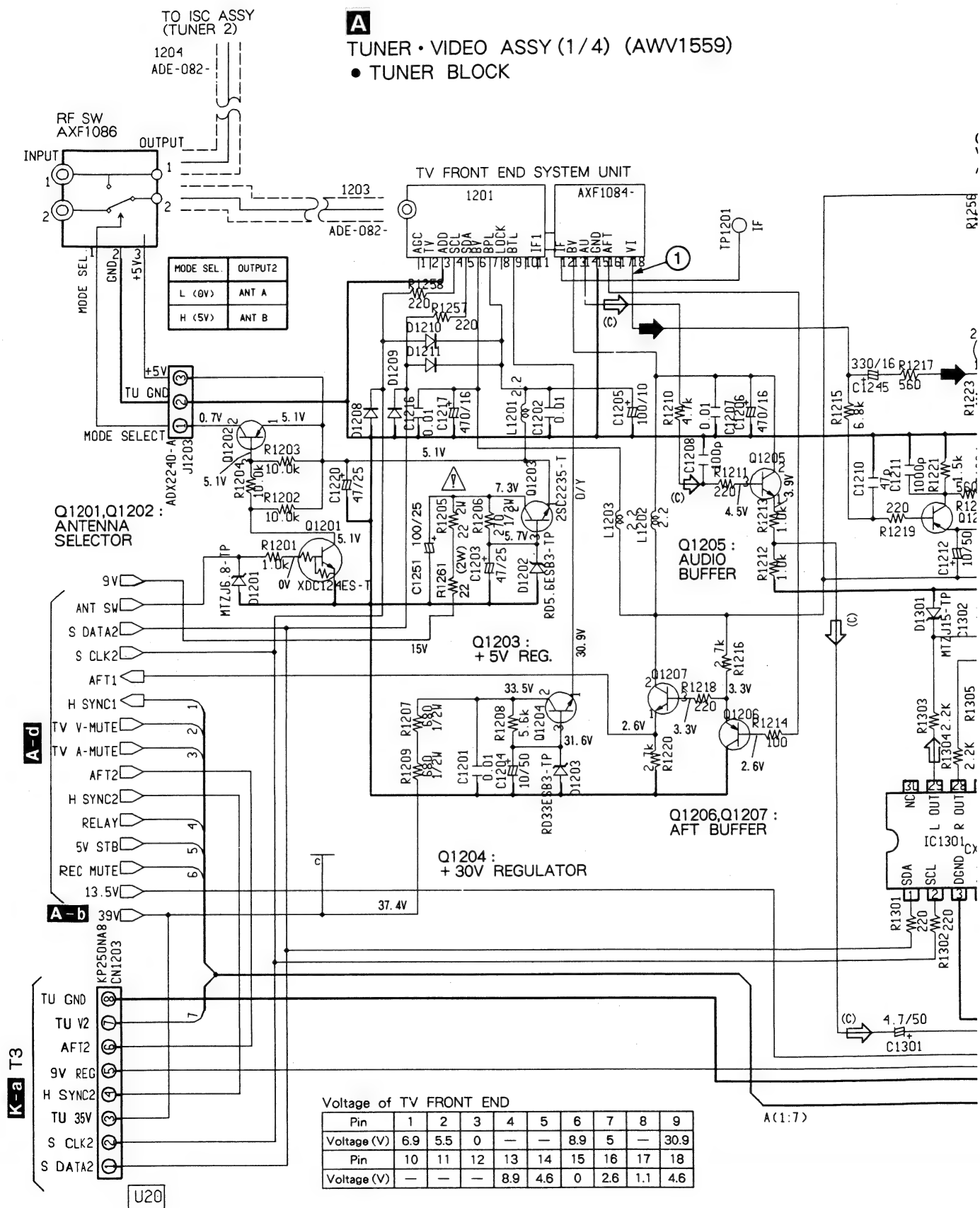
## 3.1 OVERALL WIRING DIAGRAM

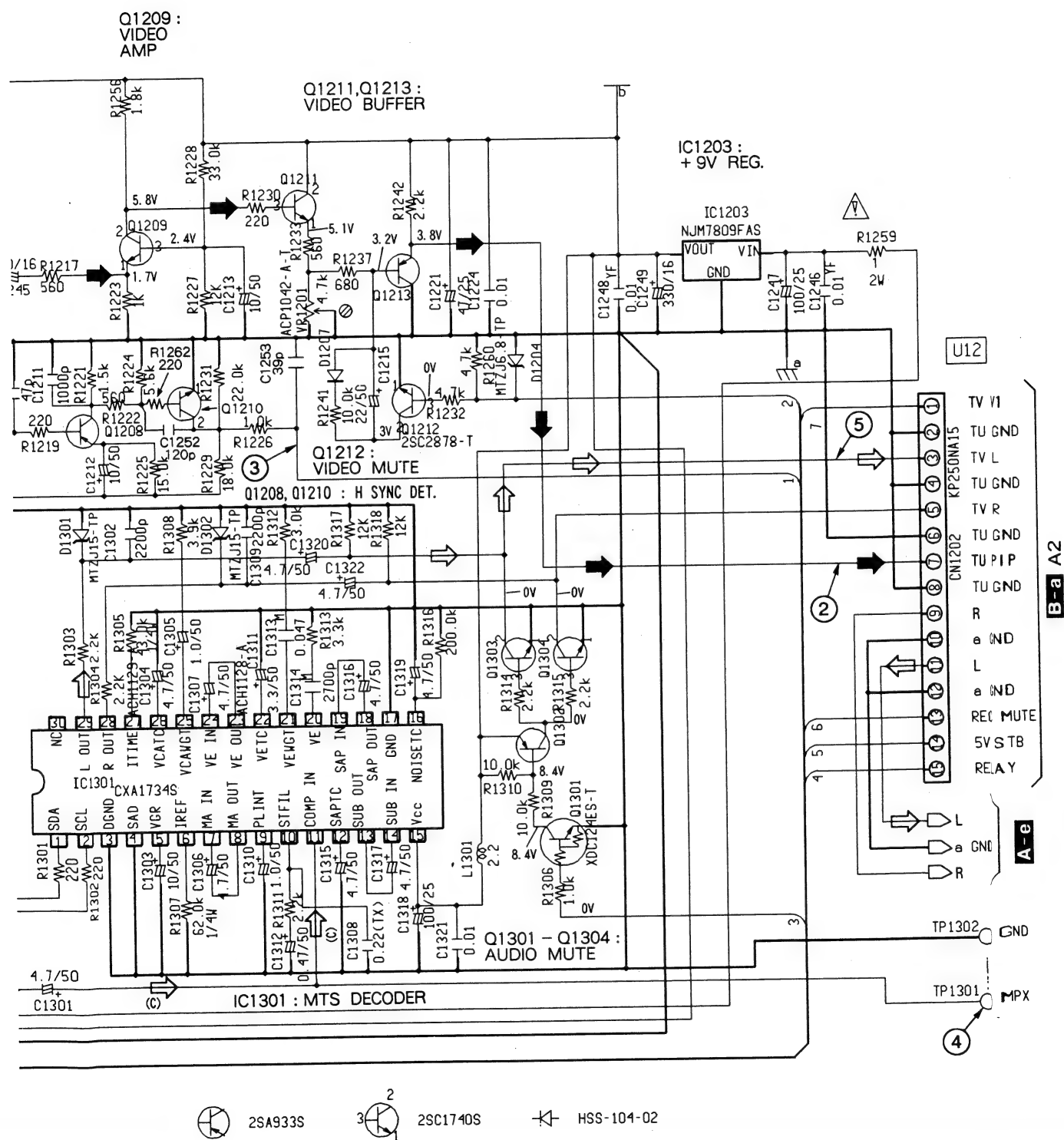




/1559)  
 BLOCK  
 LOCK  
 LOCK  
 DIO BLOCK

### 3.2 TUNER • VIDEO ASSY (1/4)

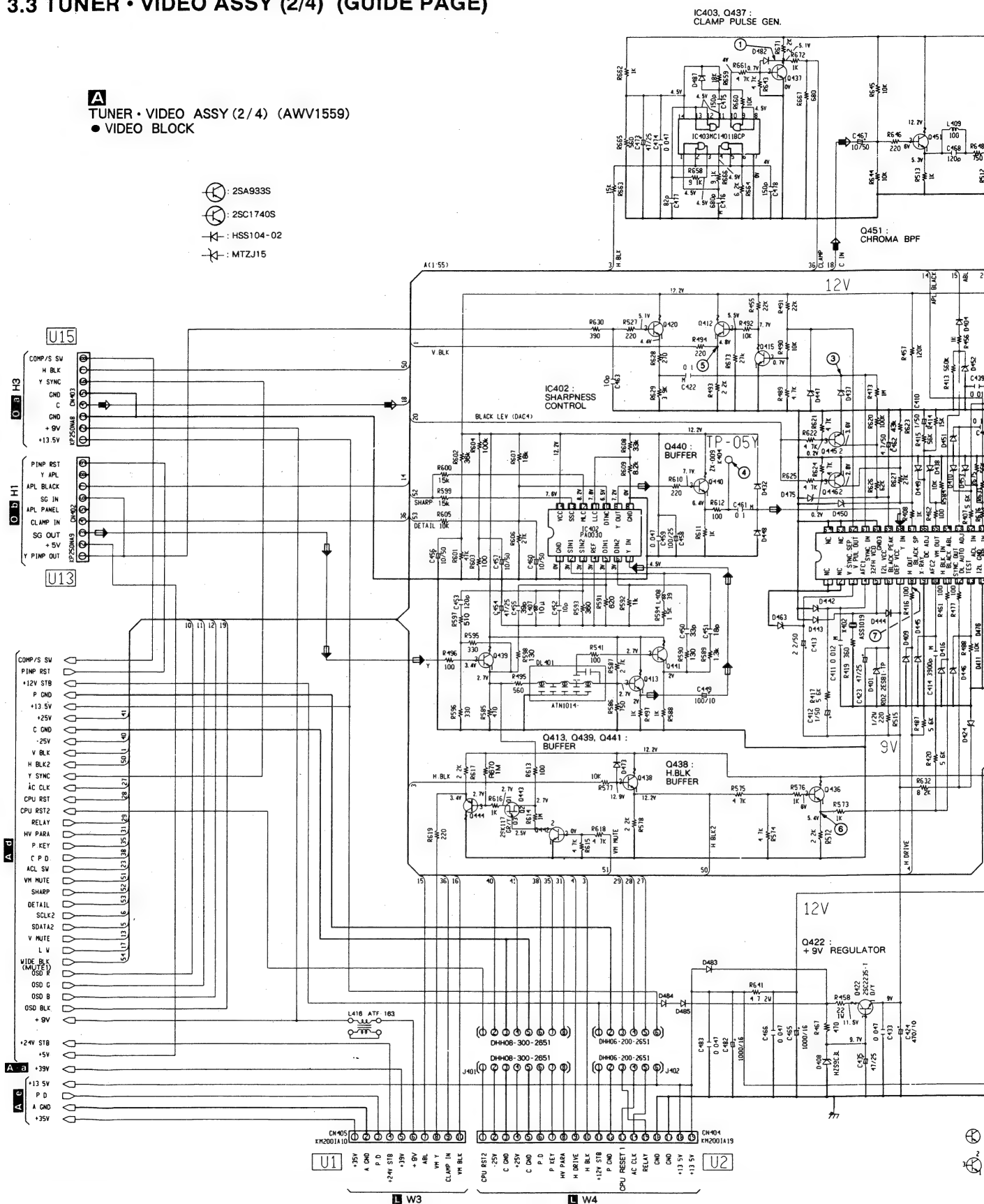


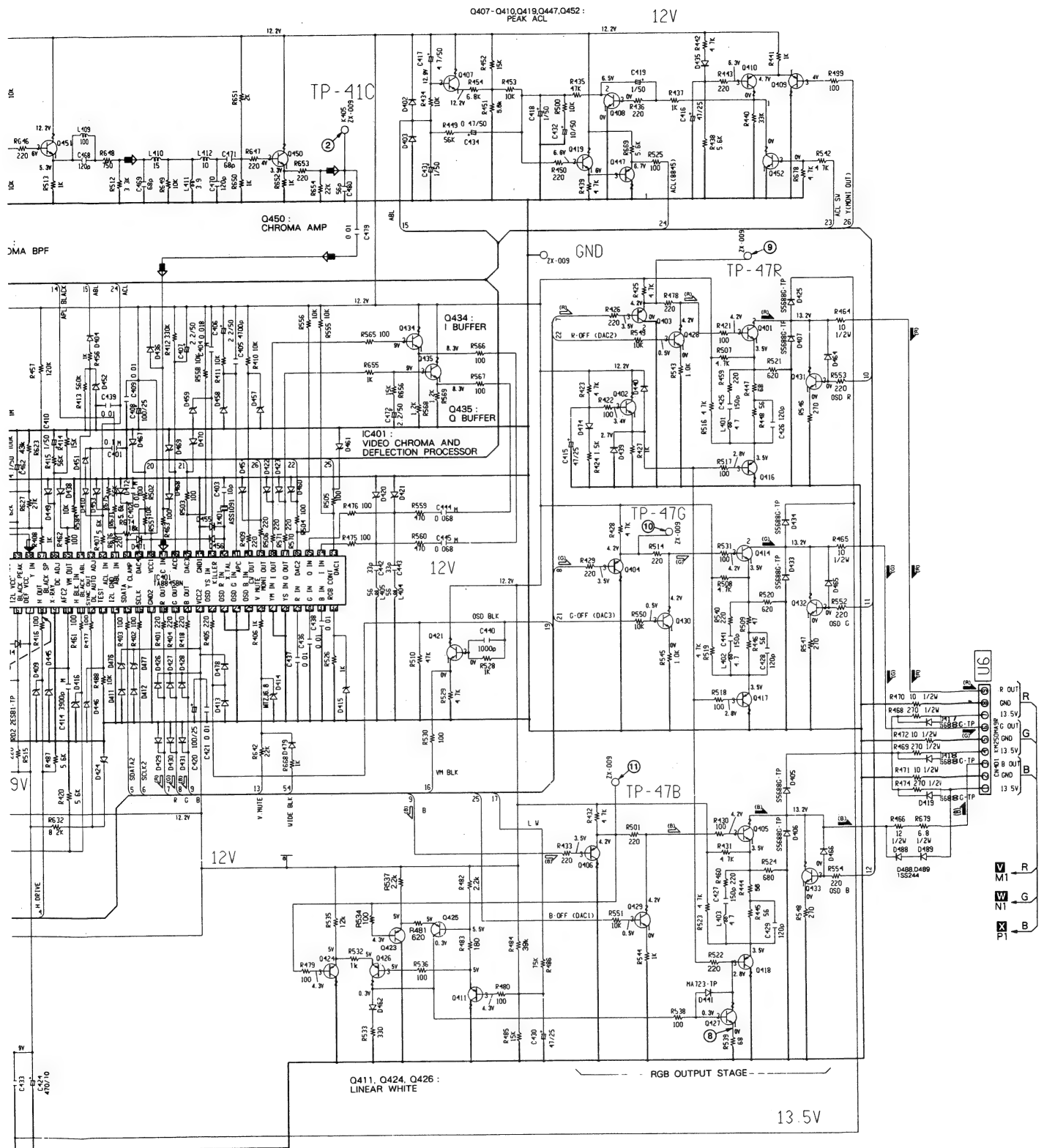


### 3.3 TUNER • VIDEO ASSY (2/4) (GUIDE PAGE)

**A**  
TUNER • VIDEO ASSY (2/4) (AWV1559)  
• VIDEO BLOCK

- ⊗ : 2SA933S
- ⊗ : 2SC1740S
- ⊗ : HSS104-02
- ⊗ : MTZJ15



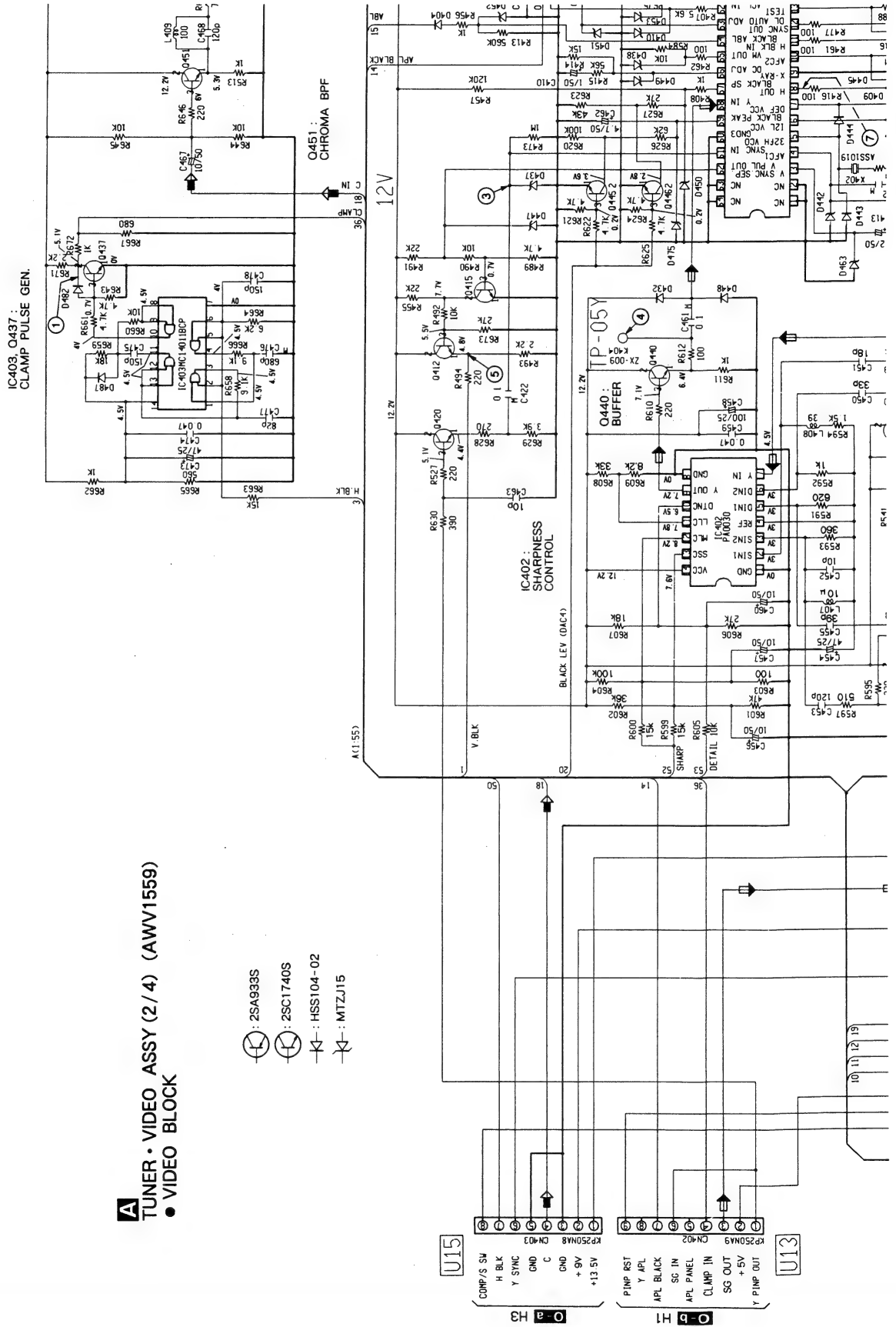




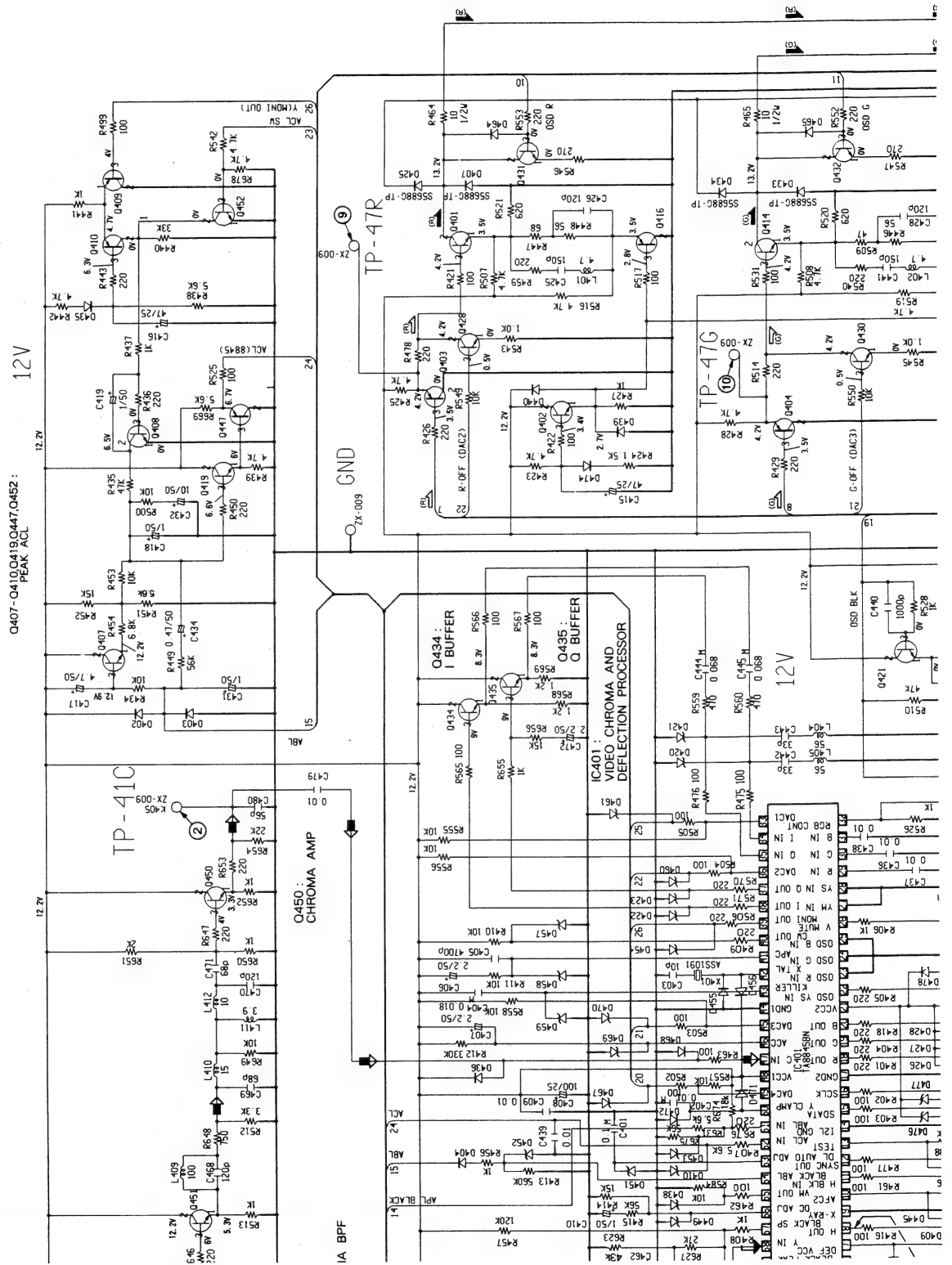
A-b A-c

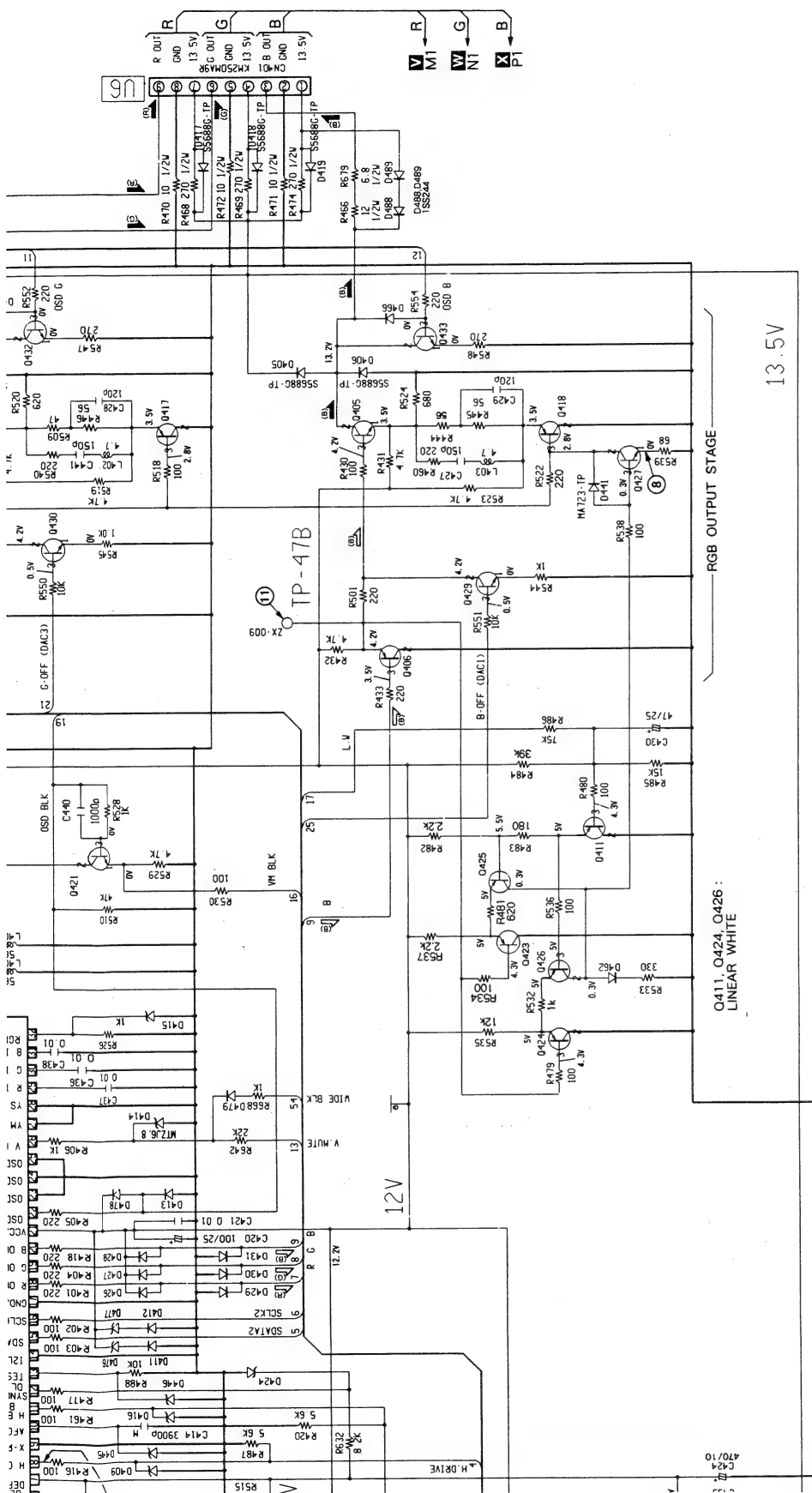
**A** TUNER • VIDEO ASSY (2/4) (AWV1559)  
• VIDEO BLOCK

- ⊗ : 25A933S
- ⊗ : 2SC1740S
- ⊗ : HSS104-02
- ⊗ : MITZJ15









K- HSS104-02

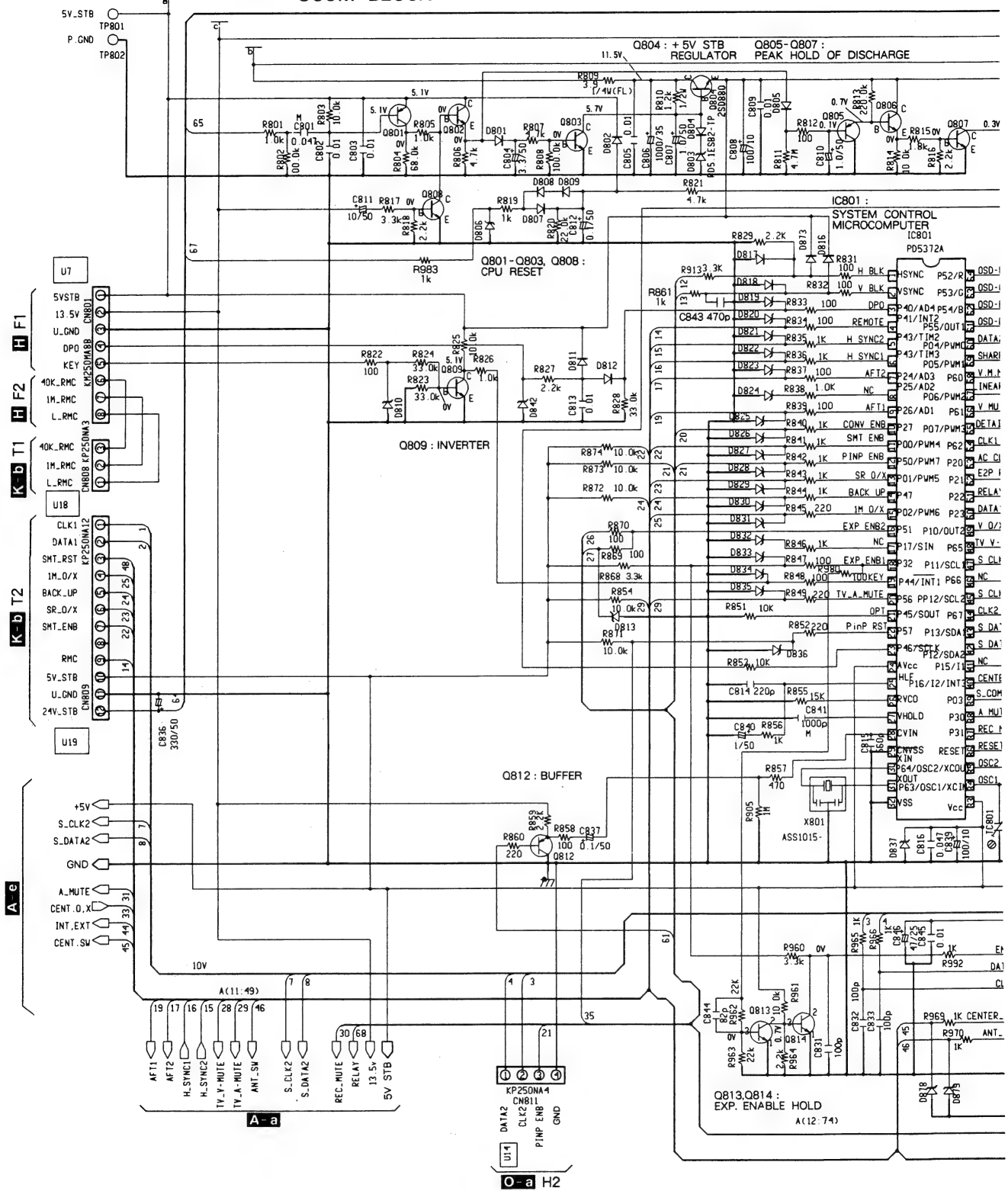
MTZJ15

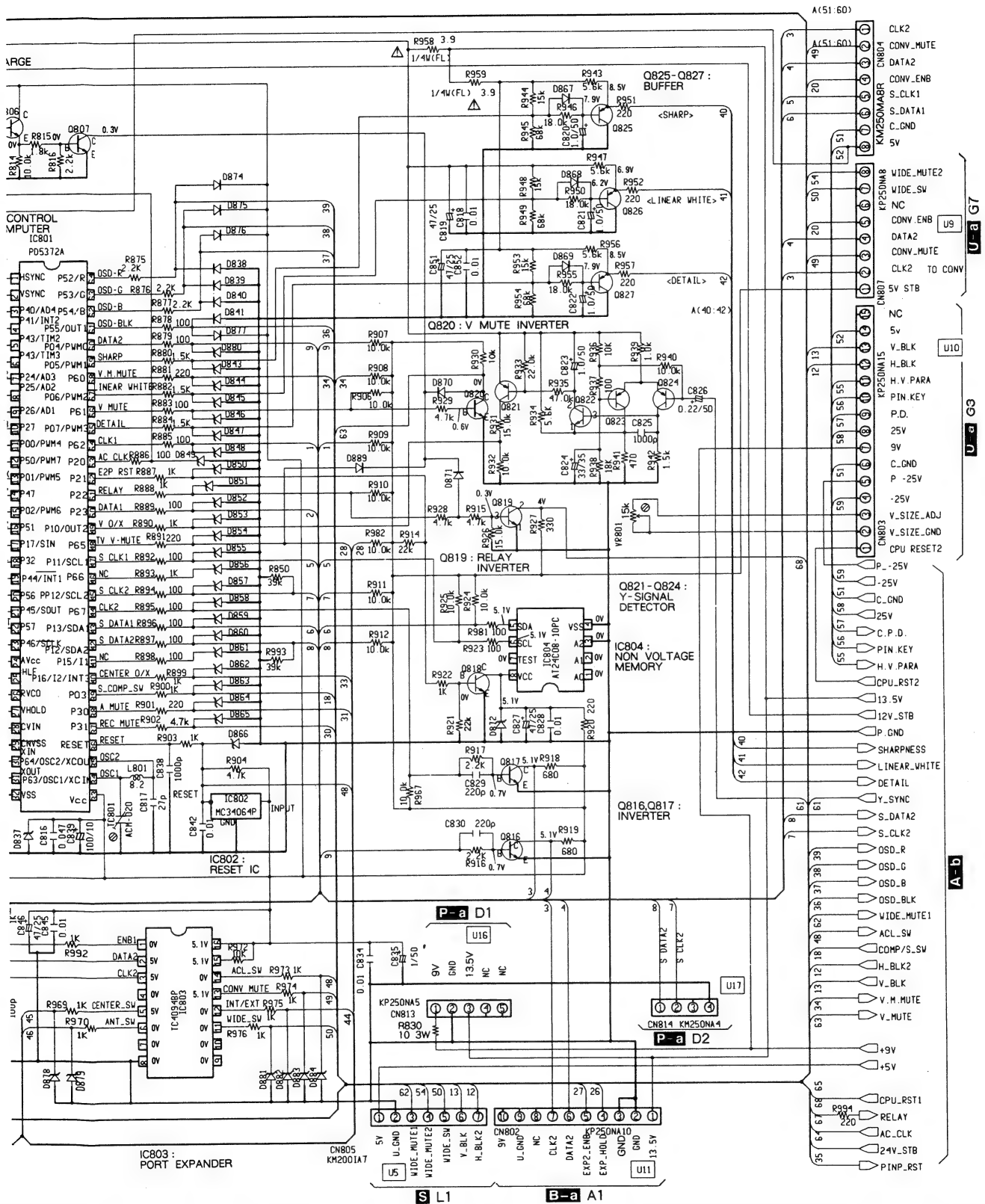
2SA933S

2SC1740S

### 3.4 TUNER • VIDEO ASSY (3/4)

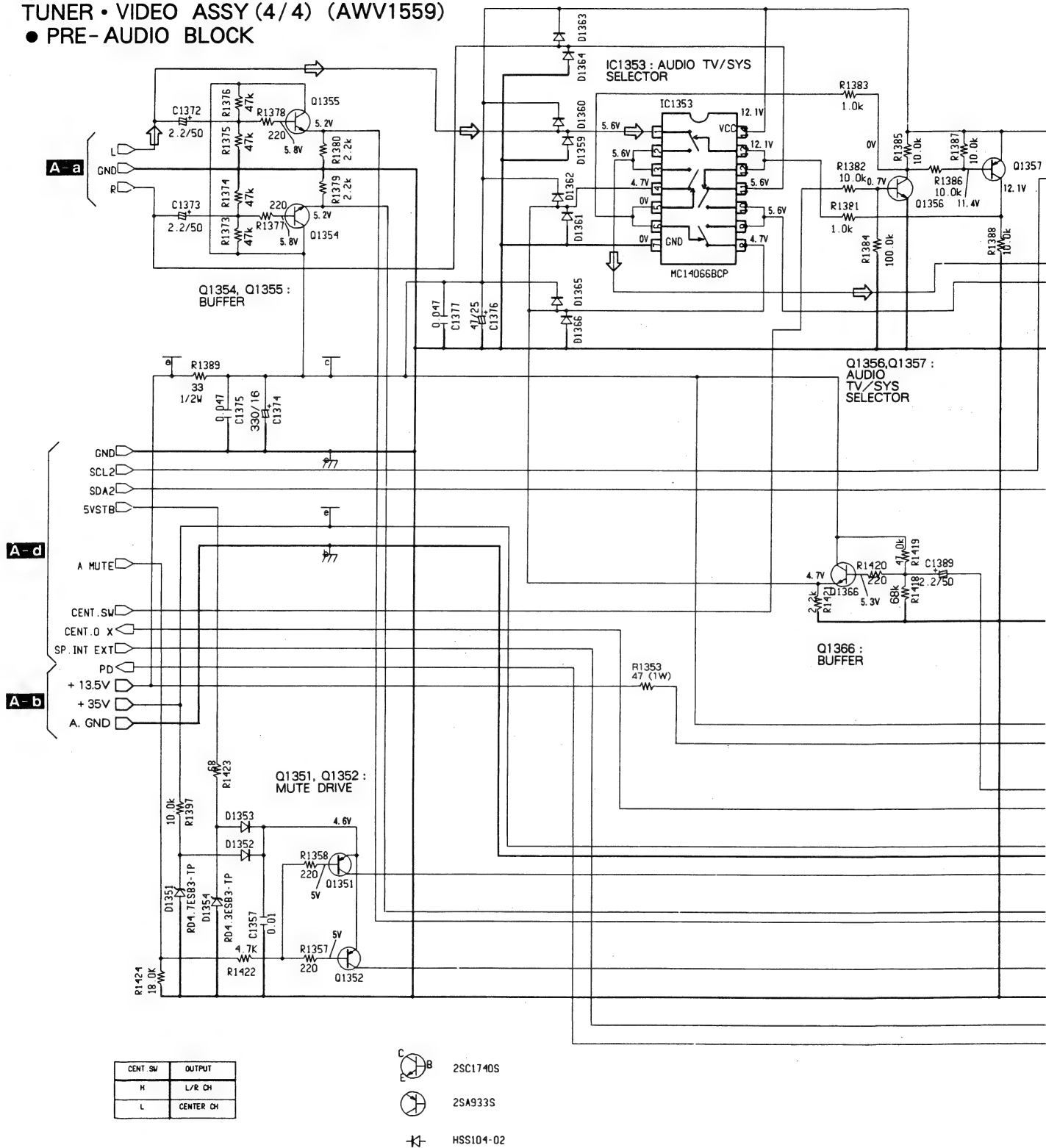
#### A TUNER • VIDEO ASSY (3/4) (AWV1559) • UCOM BLOCK





3.5 TUNER • VIDEO ASSY (4/4)

**A**  
TUNER • VIDEO ASSY (4/4) (AWV1559)  
• PRE-AUDIO BLOCK

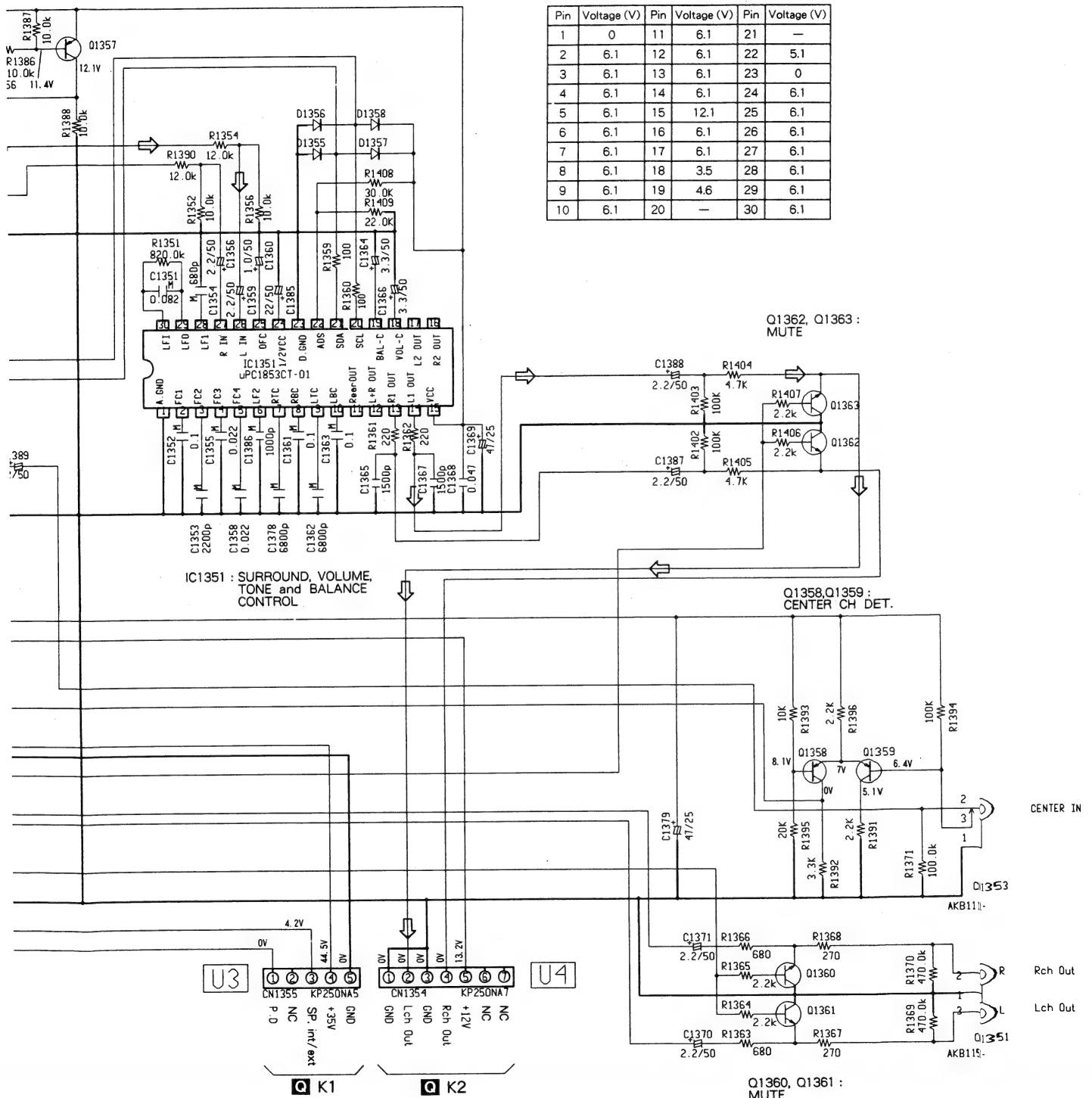




- Measuring condition
- SP SELECT : INTERNAL
- A Mute : OFF
- Volume : Min
- TREBLE, BASS, BALANCE : CENTER (STEP 0)
- Audio TV/SYS : TV

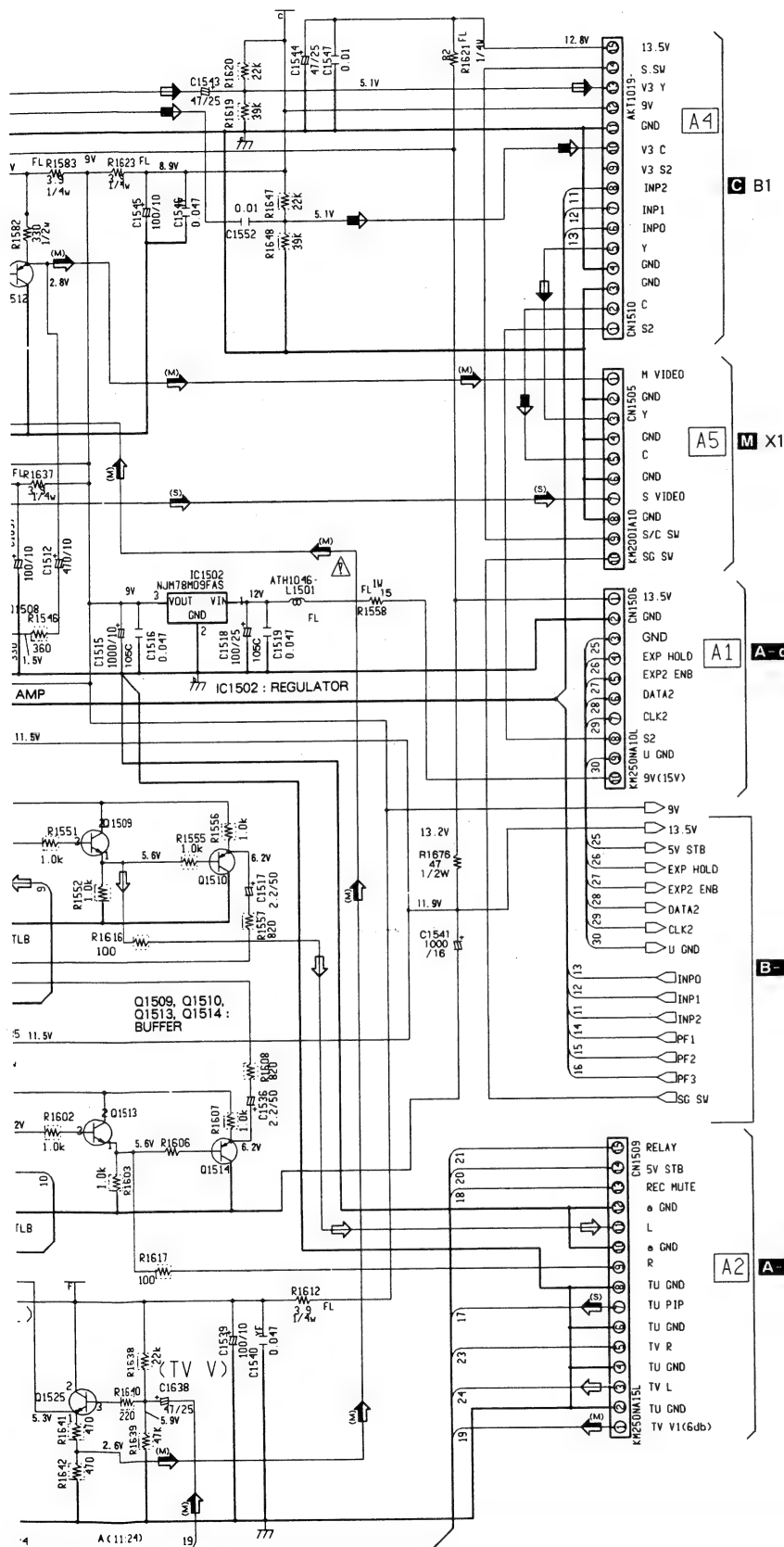
IC1351 (UPC1853CT-01)

Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)
1	0	11	6.1	21	—
2	6.1	12	6.1	22	5.1
3	6.1	13	6.1	23	0
4	6.1	14	6.1	24	6.1
5	6.1	15	12.1	25	6.1
6	6.1	16	6.1	26	6.1
7	6.1	17	6.1	27	6.1
8	6.1	18	3.5	28	6.1
9	6.1	19	4.6	29	6.1
10	6.1	20	—	30	6.1



### 3.6 AV I/O ASSY (1/2)

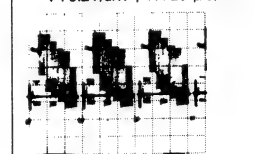




OUT	INP 0	INP 1	INP 2
LD	L	L	L
V1	H	L	L
V2	L	H	L
V3	H	H	L
TV	L	L	H

- Input signal : Color bar
- Picture quality : Standard
- AC range

① LD VIDEO IN  
V : 0.2V/div. , H : 20  $\mu$ S/div.



C  E  
B 2SA1162-TLB

c  <sup>E</sup><sub>B</sub> 2SC2712-TLB

Pin	Voltage (V)	Pin	Voltage (V)
1	4.1	9	0
2	0	10	0
3	6.2	11	0
4	0	12	6.2
5	0	13	6.2
6	0	14	6.2
7	0	15	6.2
8	0	16	11.5

Pin	Voltage (V)	Pin	Voltage (V)
1	2.9	8	2.6
2	0	9	0
3	0	10	2.6
4	0	11	8.9
5	0	12	3.3
6	2.6	13	0
7	0	14	1.5

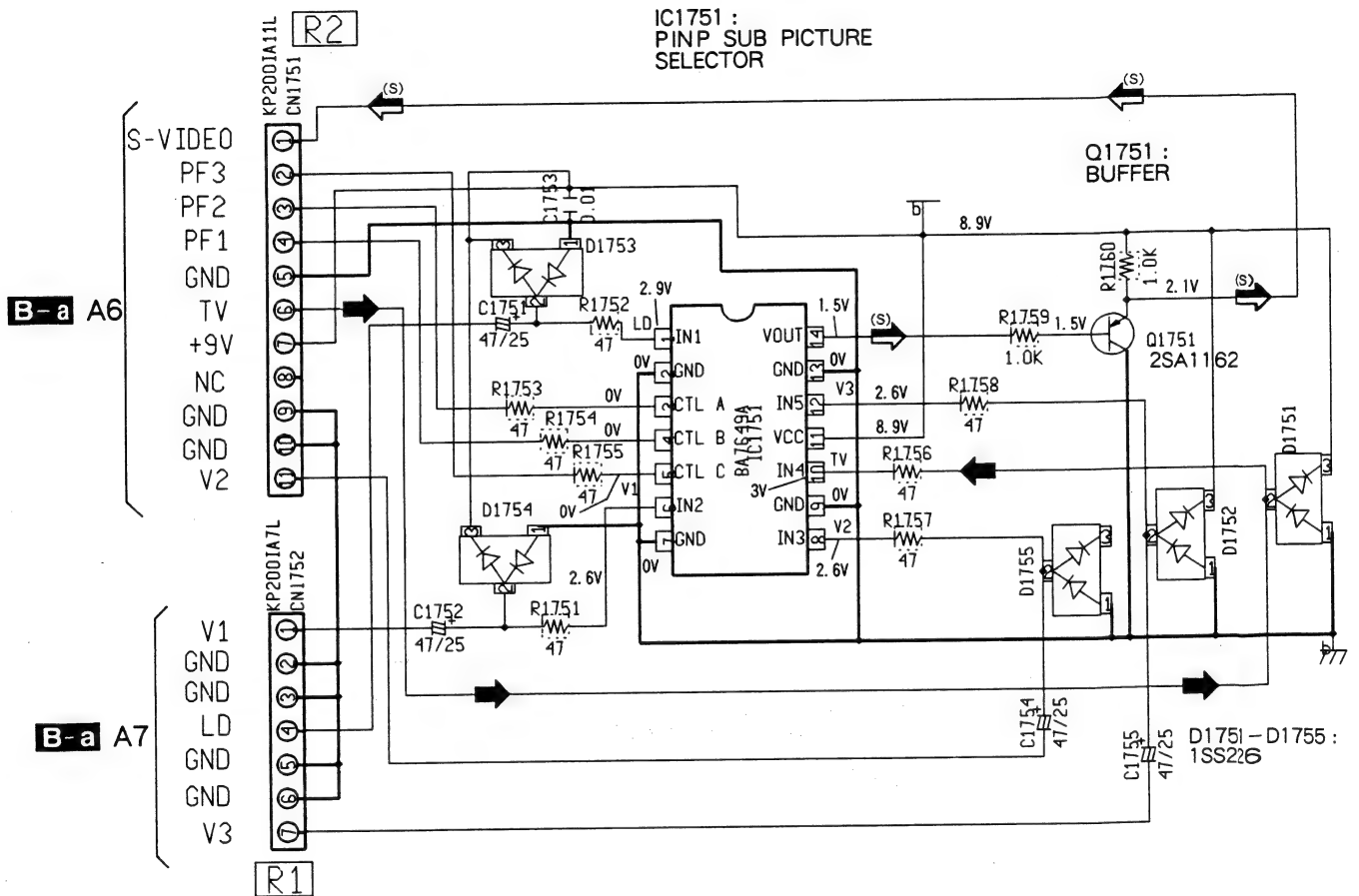
Pin	Voltage (V)	Pin	Voltage (V)
1	4.1	9	0
2	0	10	0
3	6.2	11	0
4	0	12	6.2
5	0	13	6.2
6	0	14	6.2
7	0	15	6.2
8	0	16	11.5

## 34

### 3.8 P IN P SELECTOR ASSY

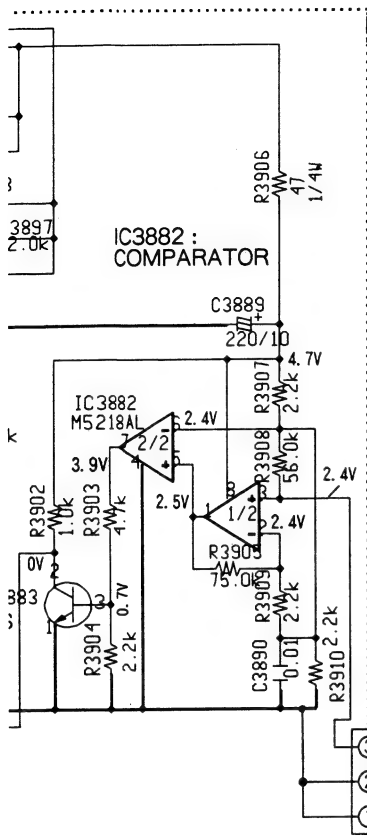
**D**

#### P IN P SELECTOR ASSY (AWZ6120)



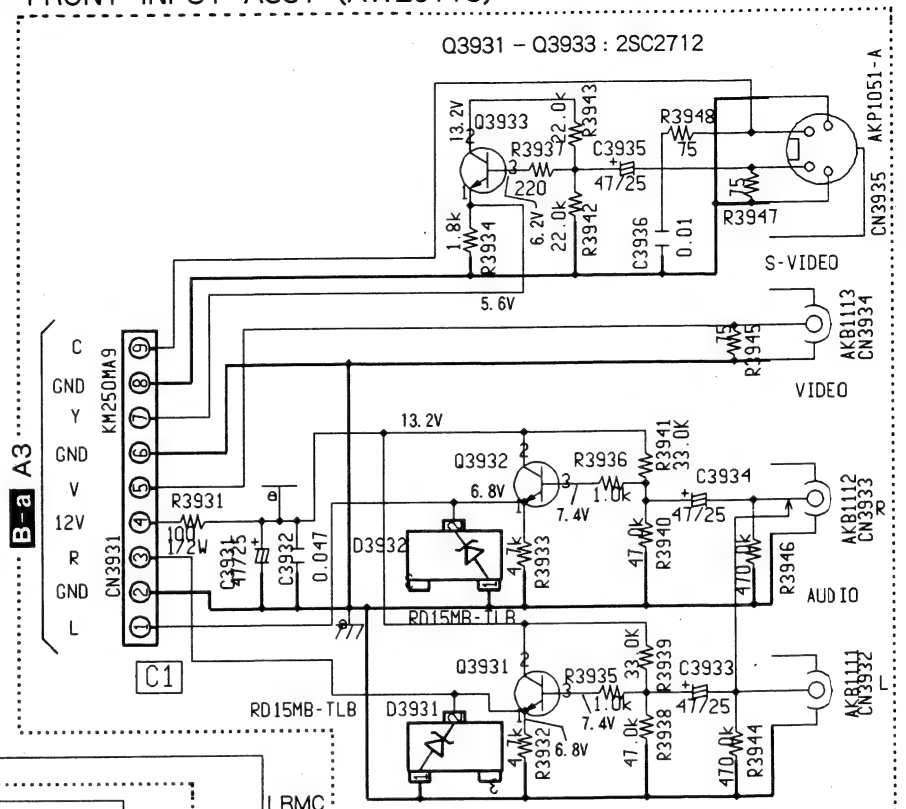
L RMC
1M RMC
40K RMC





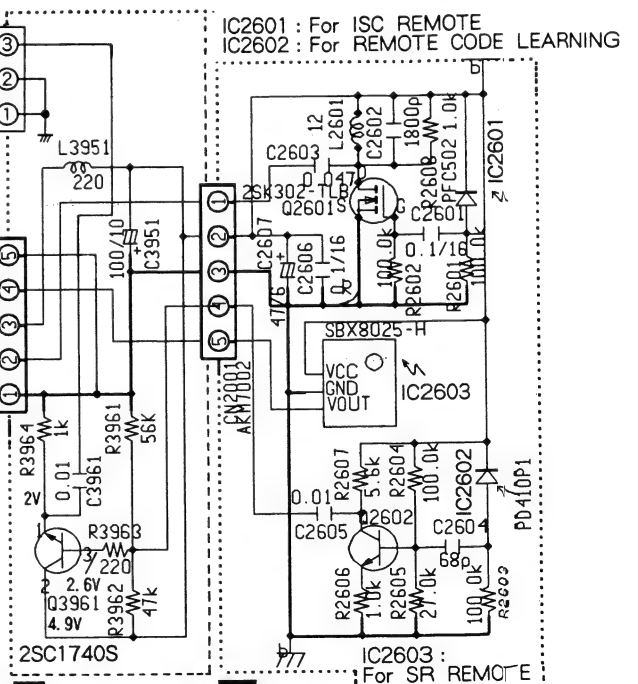
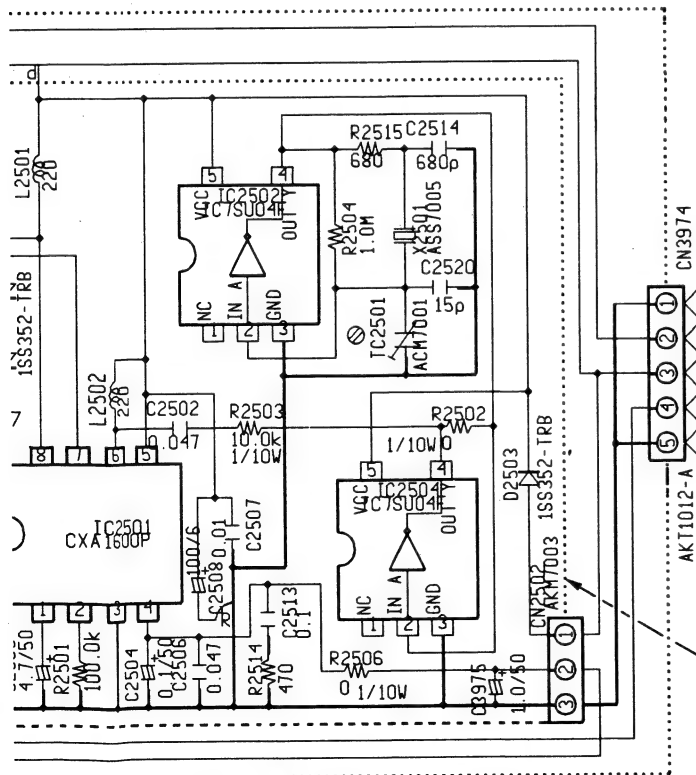
**J** RECEIVER CIRCUIT ASSY  
(AWZ6074)

**E** FRONT INPUT ASSY (AWZ6118)



**F** IR RECEIVER  
ASSY  
(AWZ6115)

**I** RECEIVER ELEMENT ASSY  
(AWZ6073)

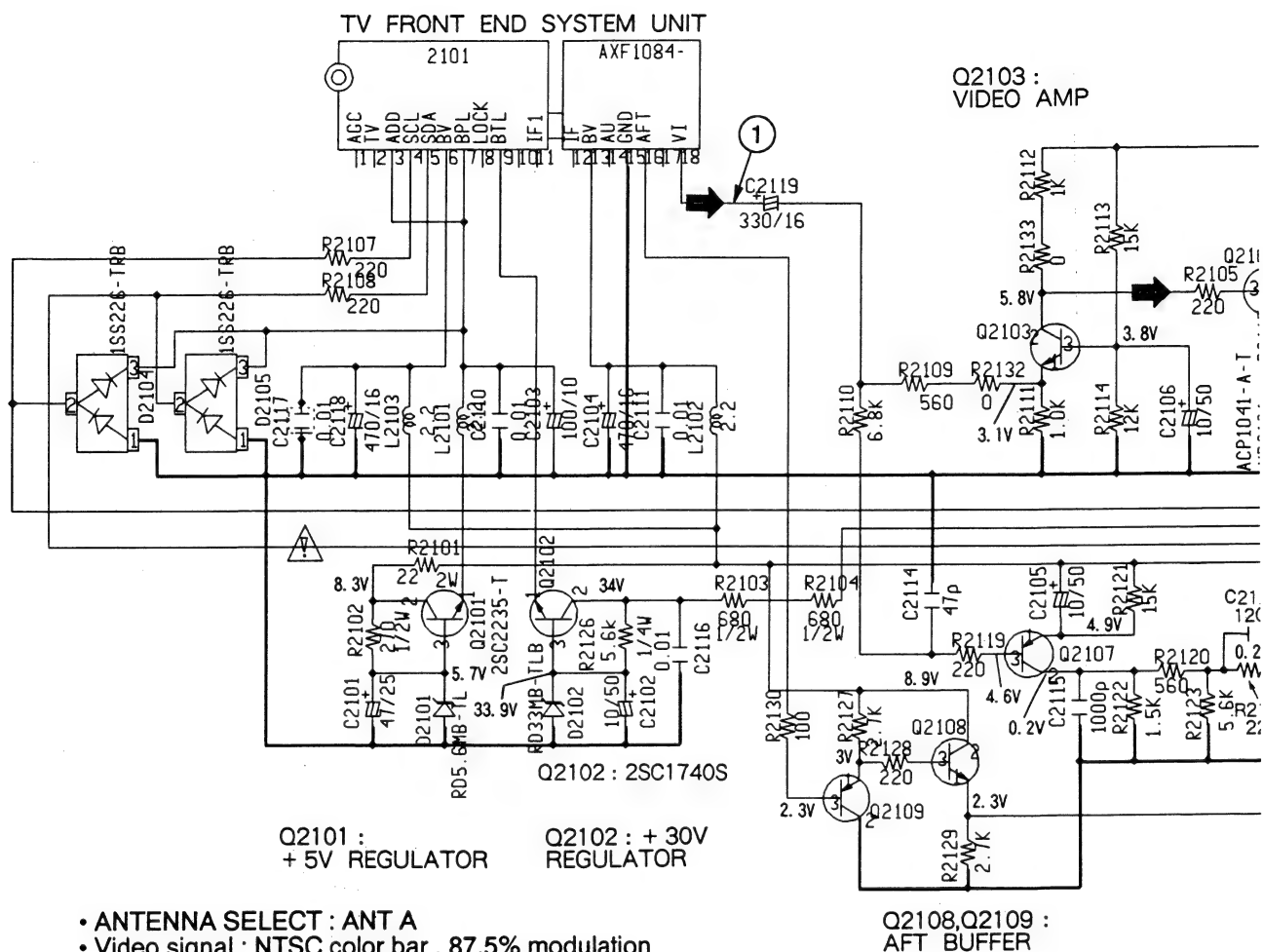


### 3.10 ISC ASSY (1/2)

**K**

ISC ASSY (1/2) (AWZ6104)

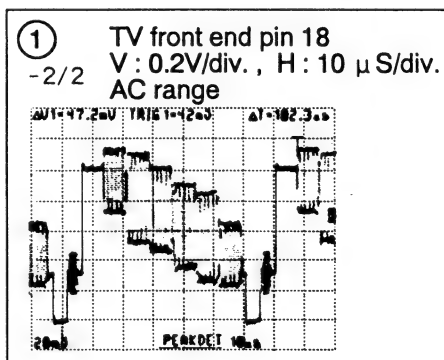
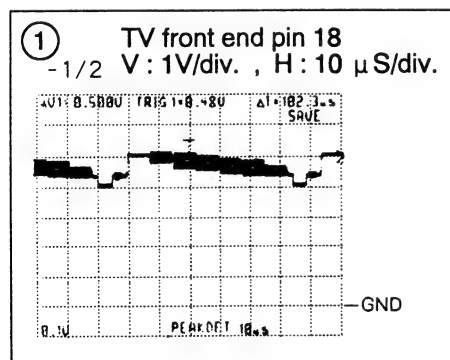
- TUNER 2 BLOCK



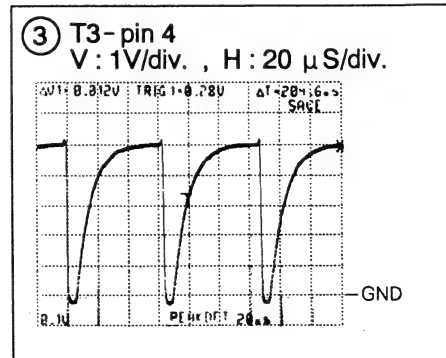
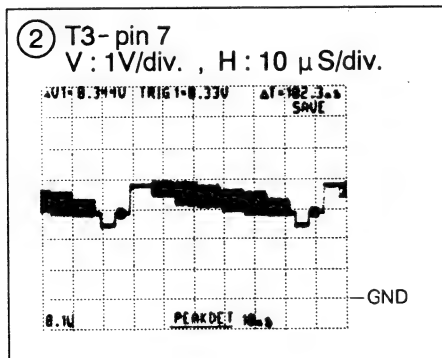
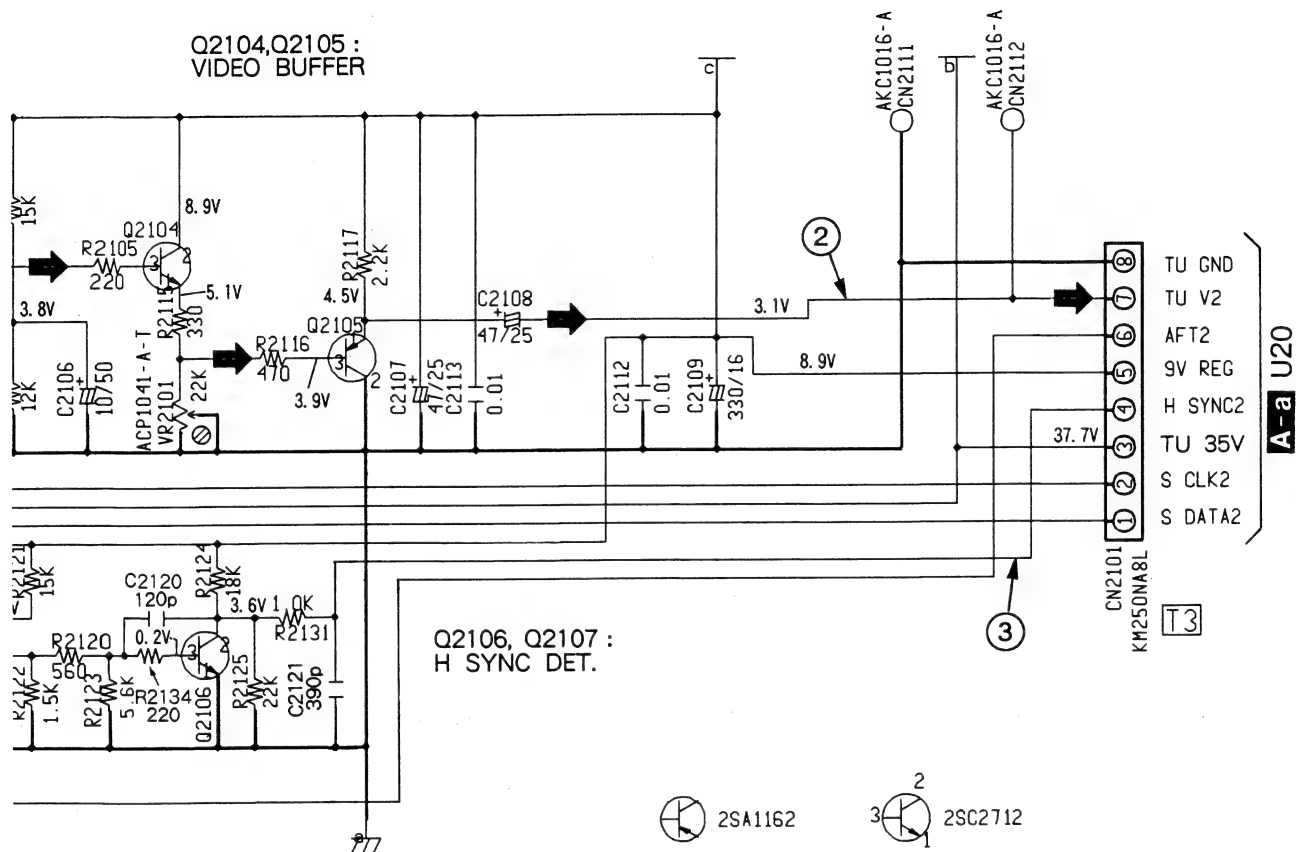
- **ANTENNA SELECT : ANT A**
- **Video signal : NTSC color bar , 87.5% modulation**
- **Audio signal : 1kHz sinewave,  $\pm$  25kHz deviation**
- **DC range (unless otherwise noted)**

### Voltage of TV FRONT END

Pin	1	2	3	4	5	6	7	8	9
Voltage (V)	6.9	5.5	5	—	—	8.9	5	—	33.2
Pin	10	11	12	13	14	15	16	17	18
Voltage (V)	—	—	—	8.9	4.6	0	2.3	1.1	4.6



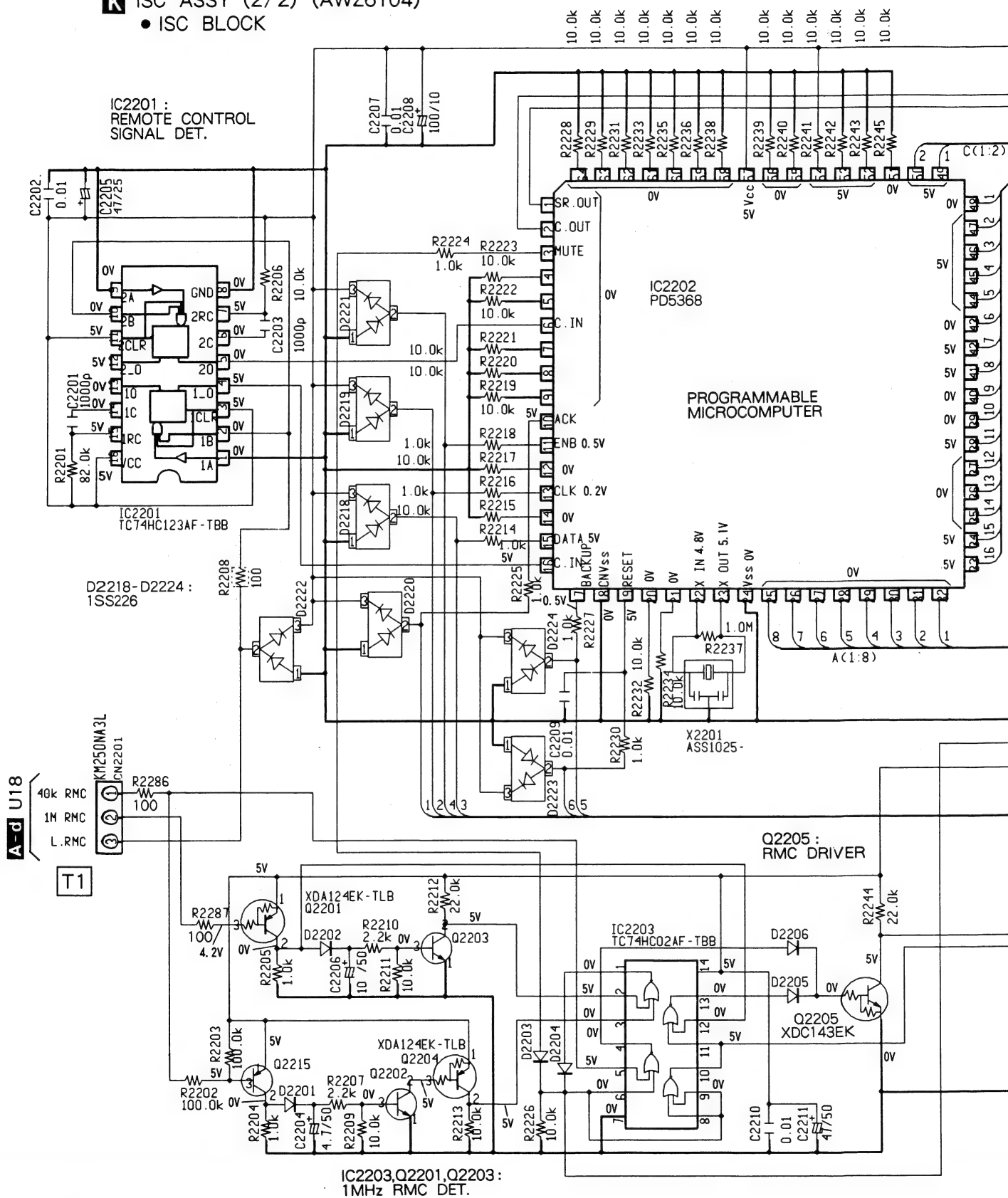


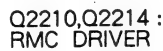


### 3.11 ISC ASSY (2/2)

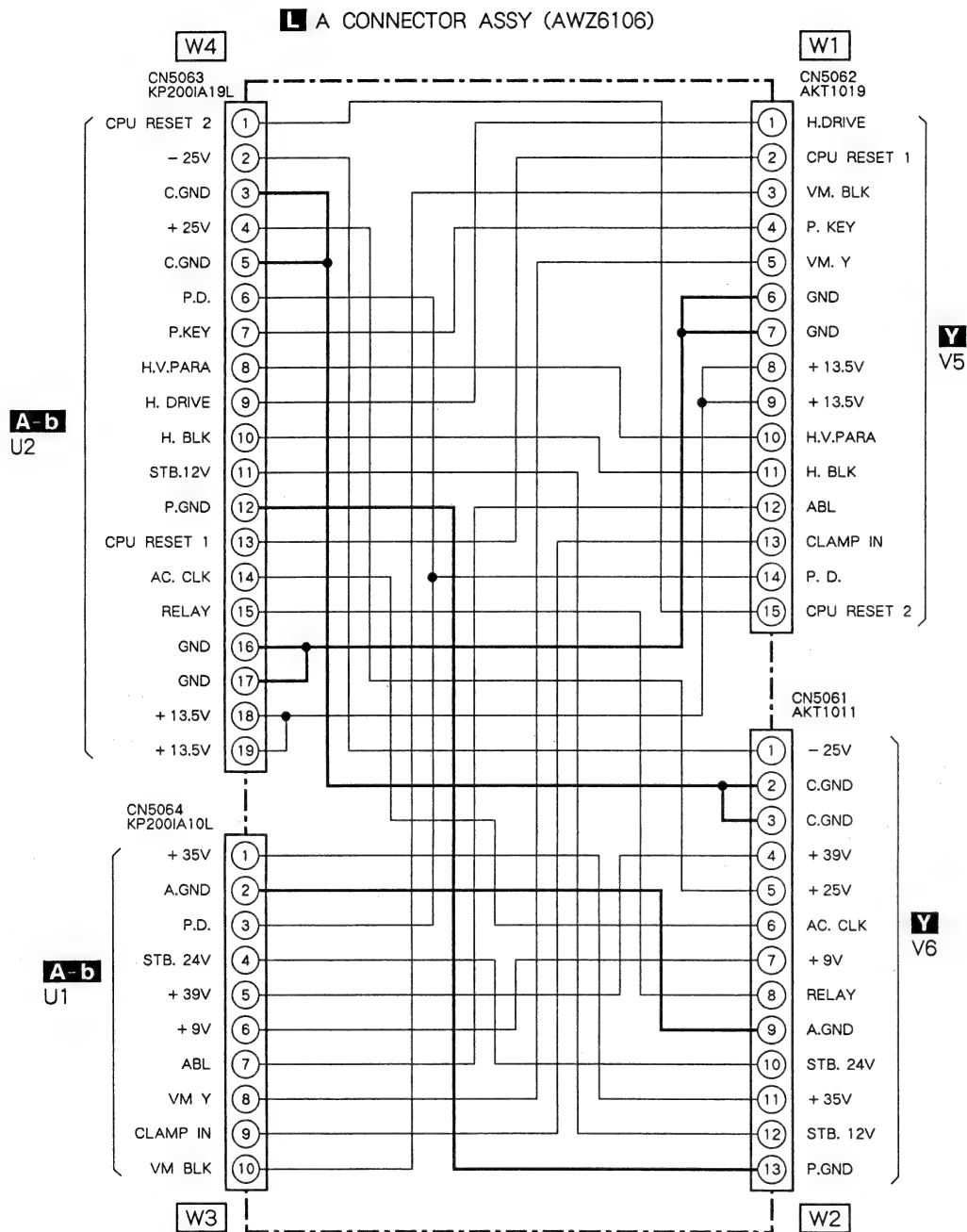
**K** ISC ASSY (2/2) (AWZ6104)

- ISC BLOCK

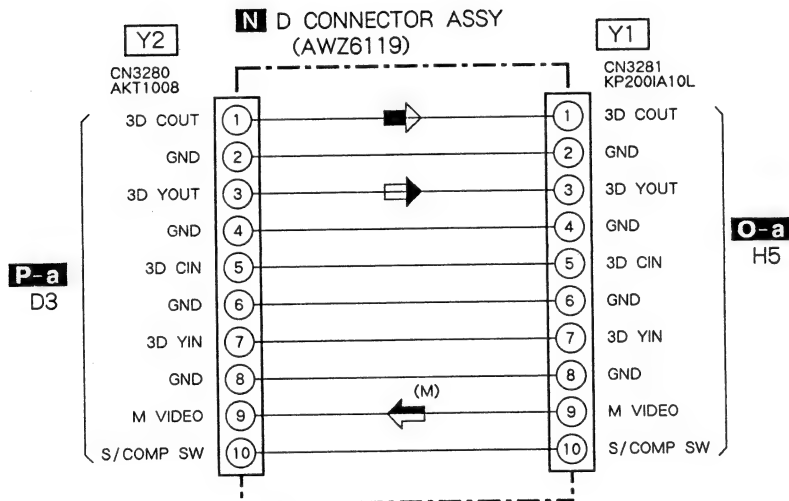
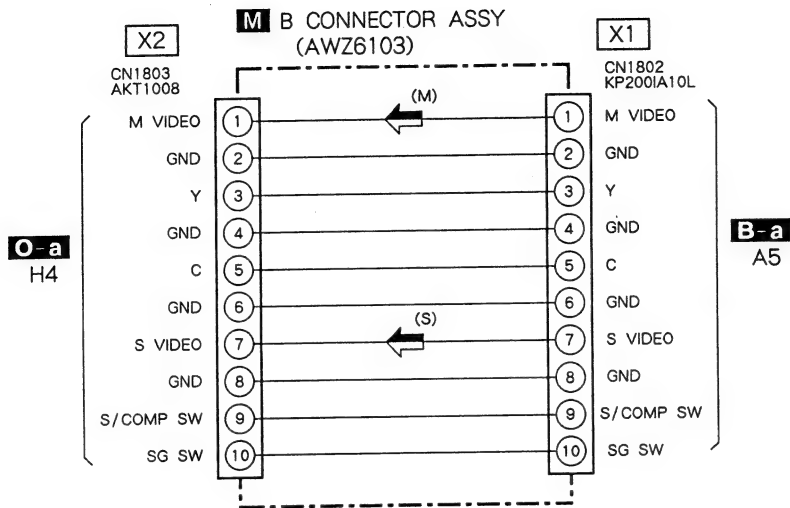




3.12 A CONNECTOR ASSY

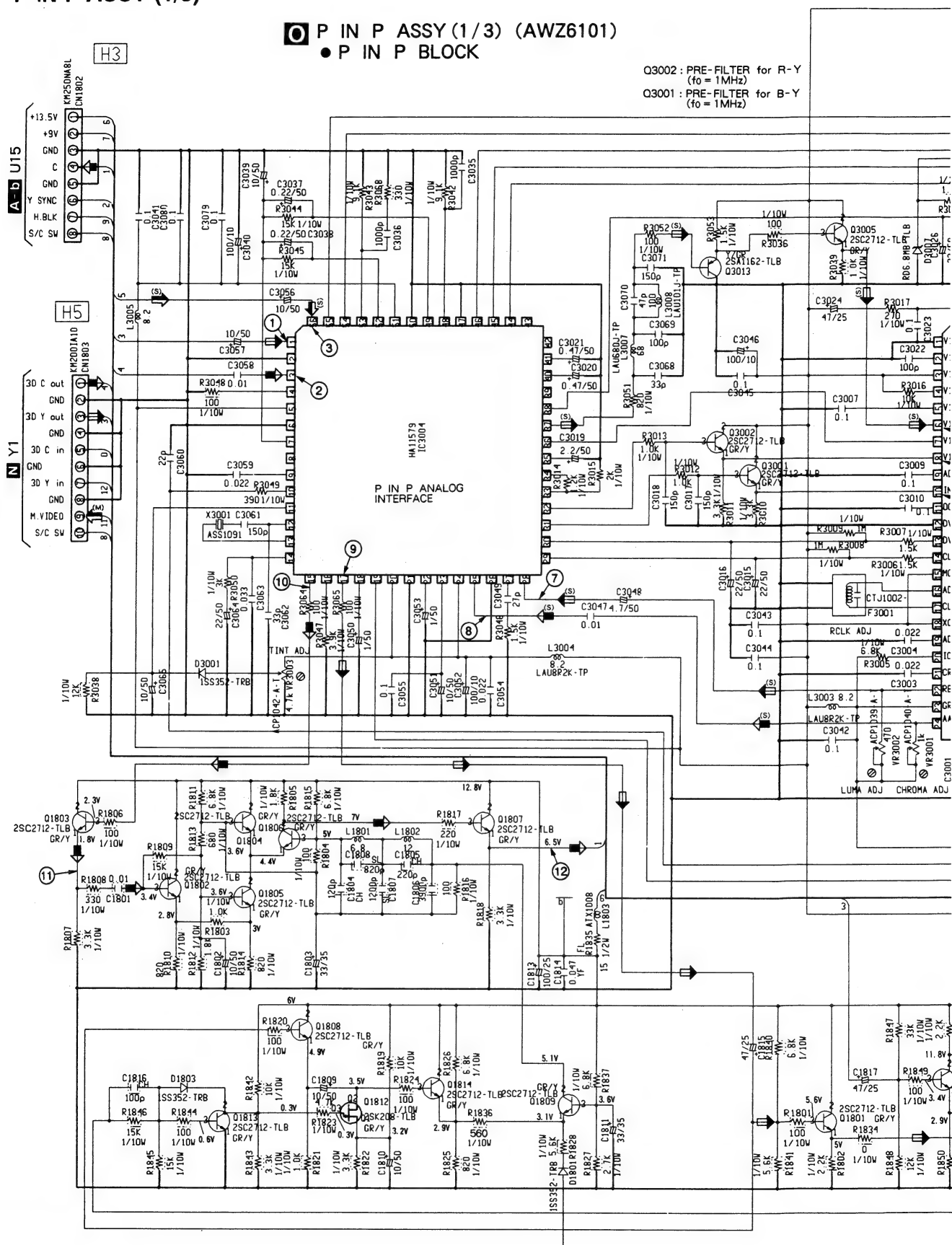


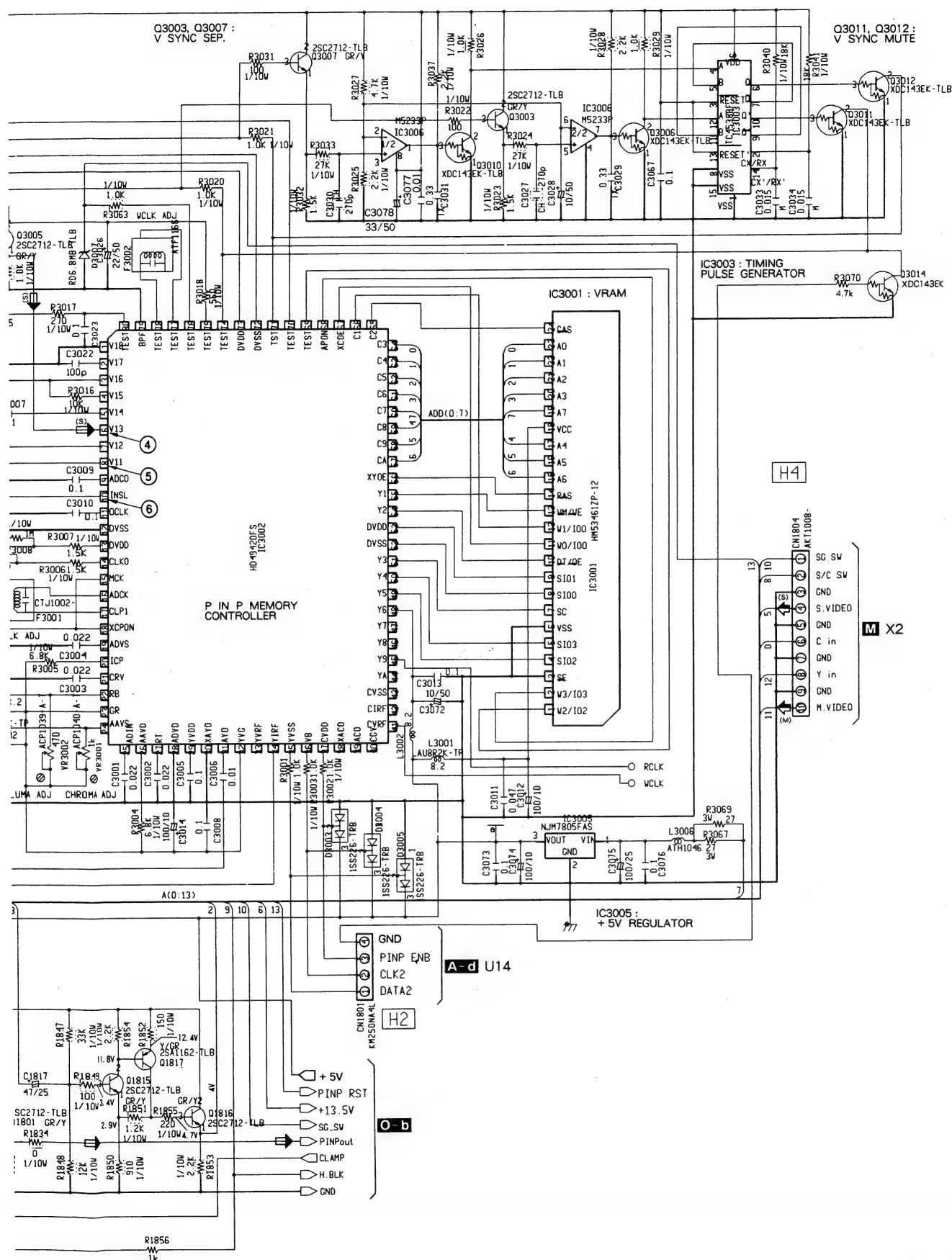
### 3.13 B AND D CONNECTOR ASSEMBLIES



3.14 P IN P ASSY (1/3)

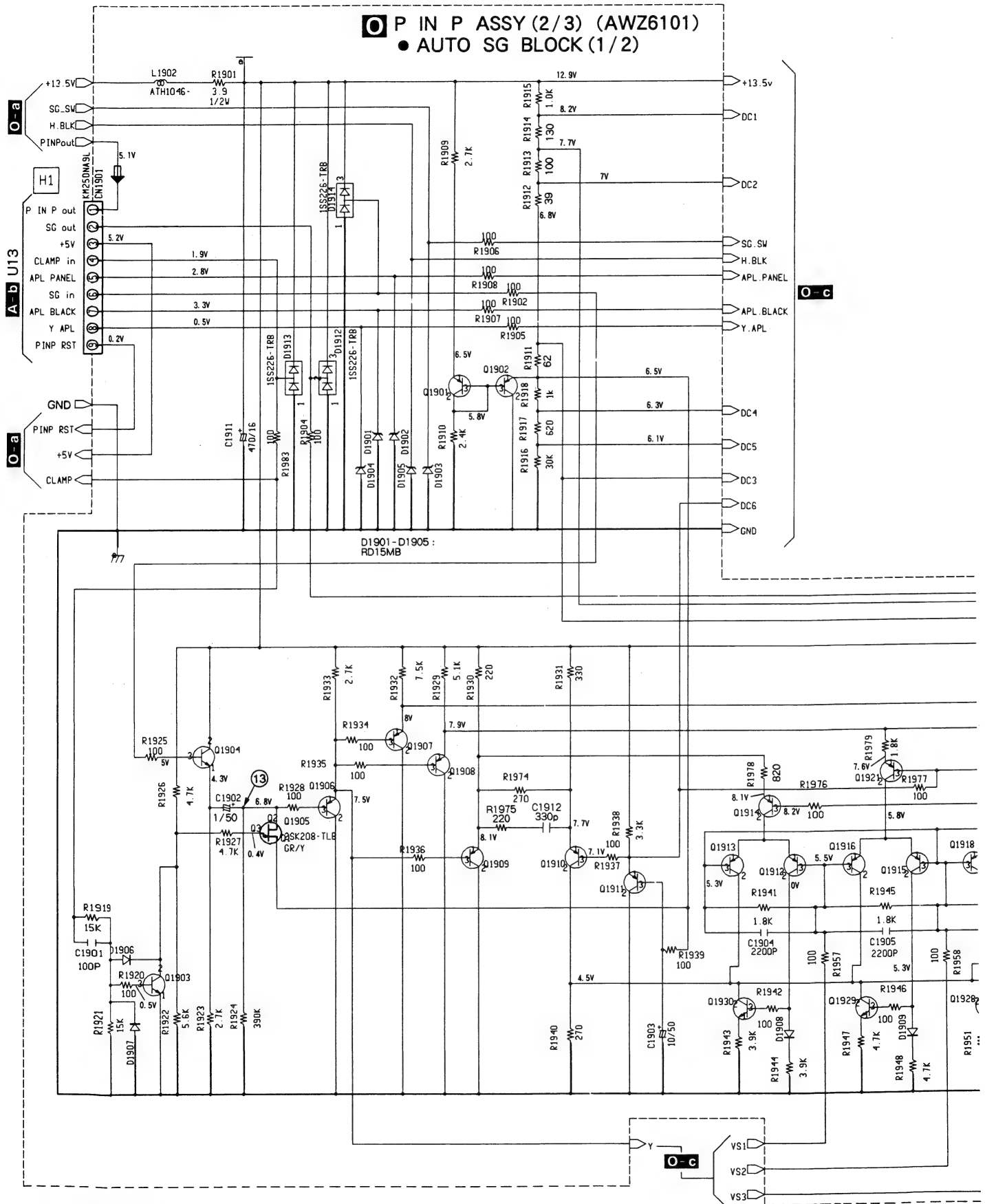
**P IN P ASSY (1/3) (AWZ6101)**  
**● P IN P BLOCK**





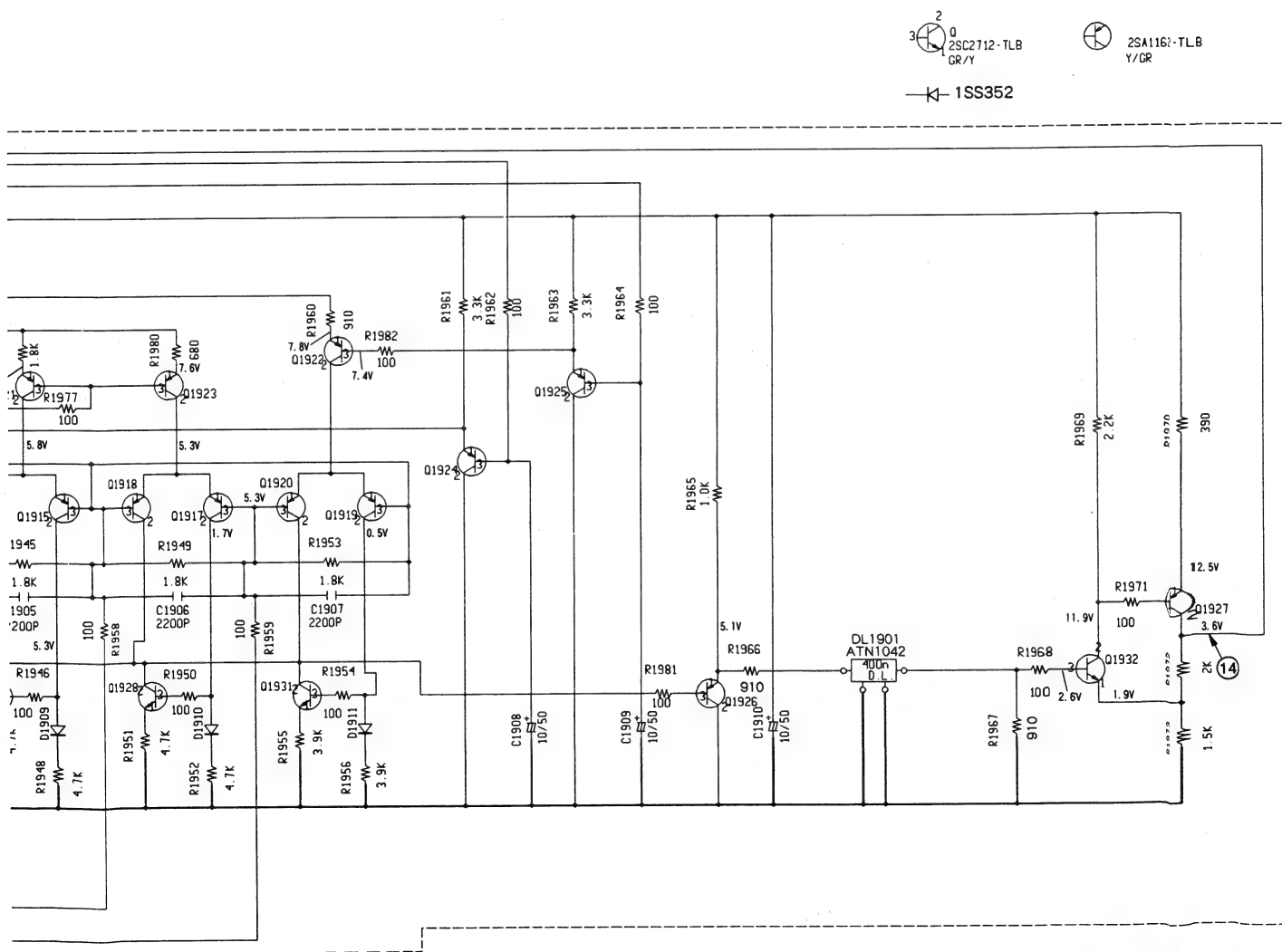
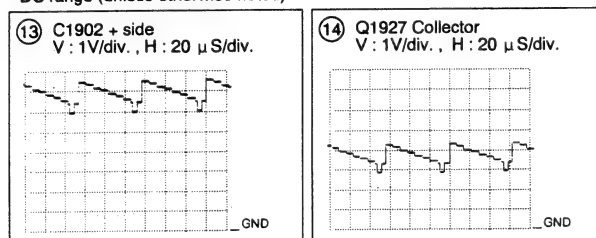
# PRO-119, PRO-99

## 3.15 P IN P ASSY (2/3)





- Input signal : Clor bar
- DC range (unless otherwise noted)

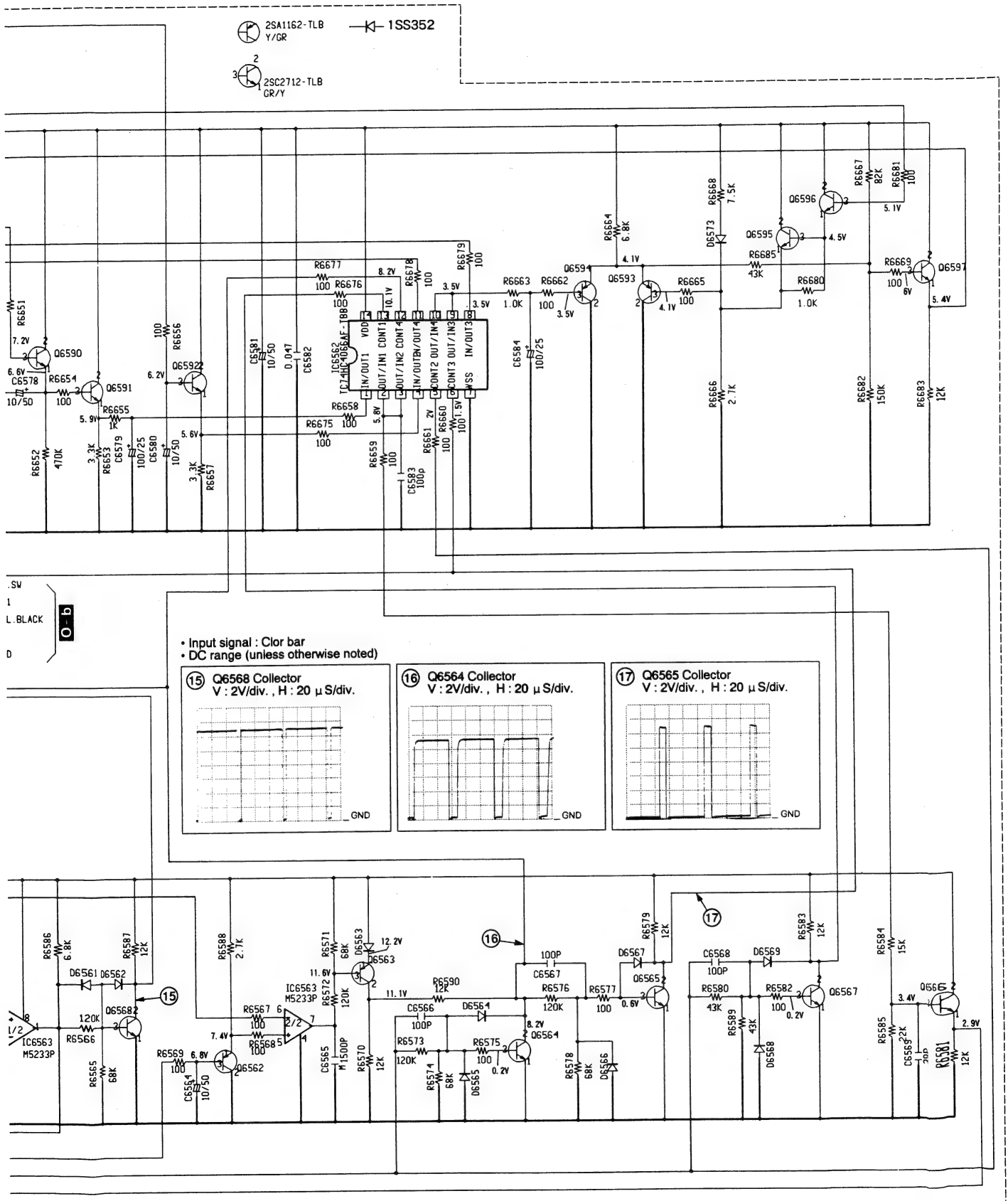


**O-C**

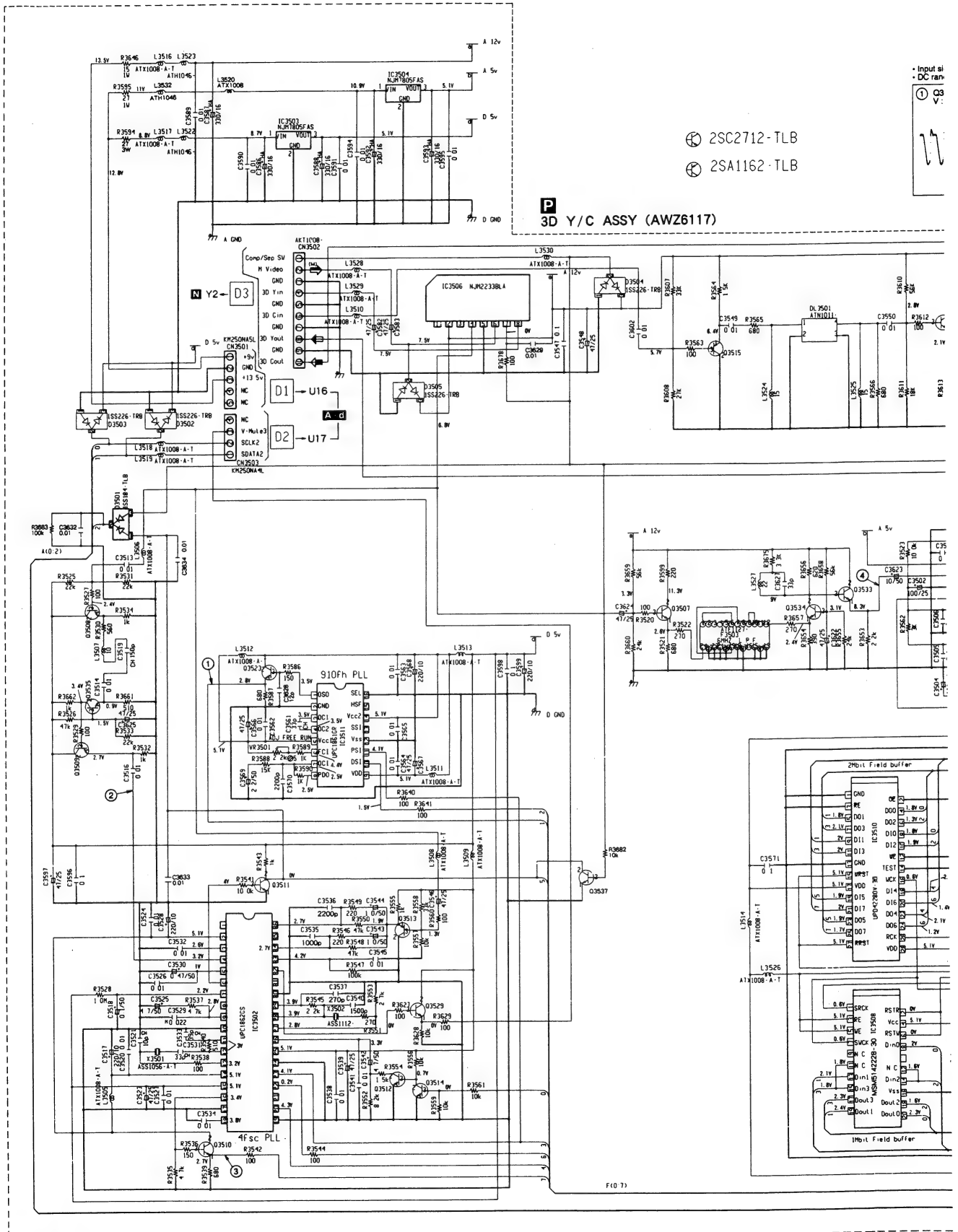
**Q P IN P ASSY (3/3) (AWZ6101)**

- **AUTO SG BLOCK (2/2)**



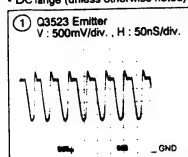


### 3.17 3D Y/C ASSY (GUIDE PAGE)

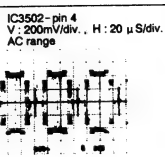


- Input signal : Clor bar
- DC range (unless otherwise noted)

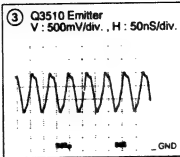
① Q3523 Emitter  
V: 500mV/div., H: 50nS/div.



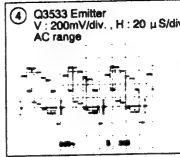
IC3502-pin 4  
V: 200mV/div., H: 20  $\mu$ S/div.



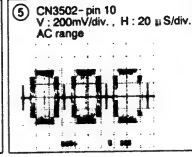
③ Q3510 Emitter  
V : 500mV/div. , H : 50nS/div.



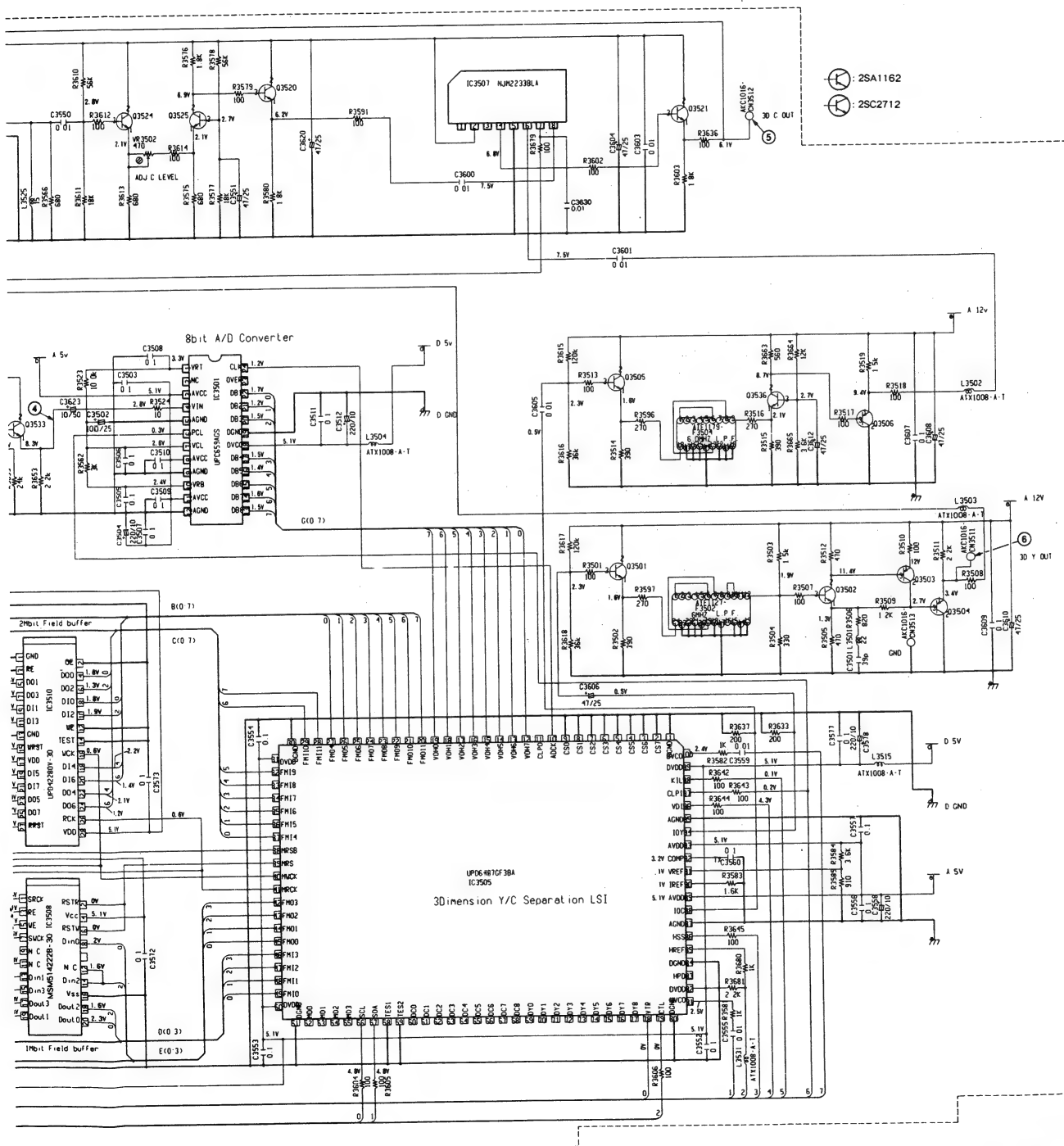
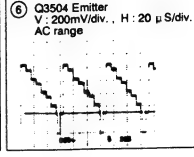
④ Q3533 Emitter  
V : 200mV/div., H : 20  $\mu$ S/div  
AC range

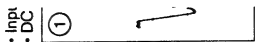


⑤ CN3502-pin 10  
V : 200mV/div., H : 20  $\mu$ S/div.  
AC range

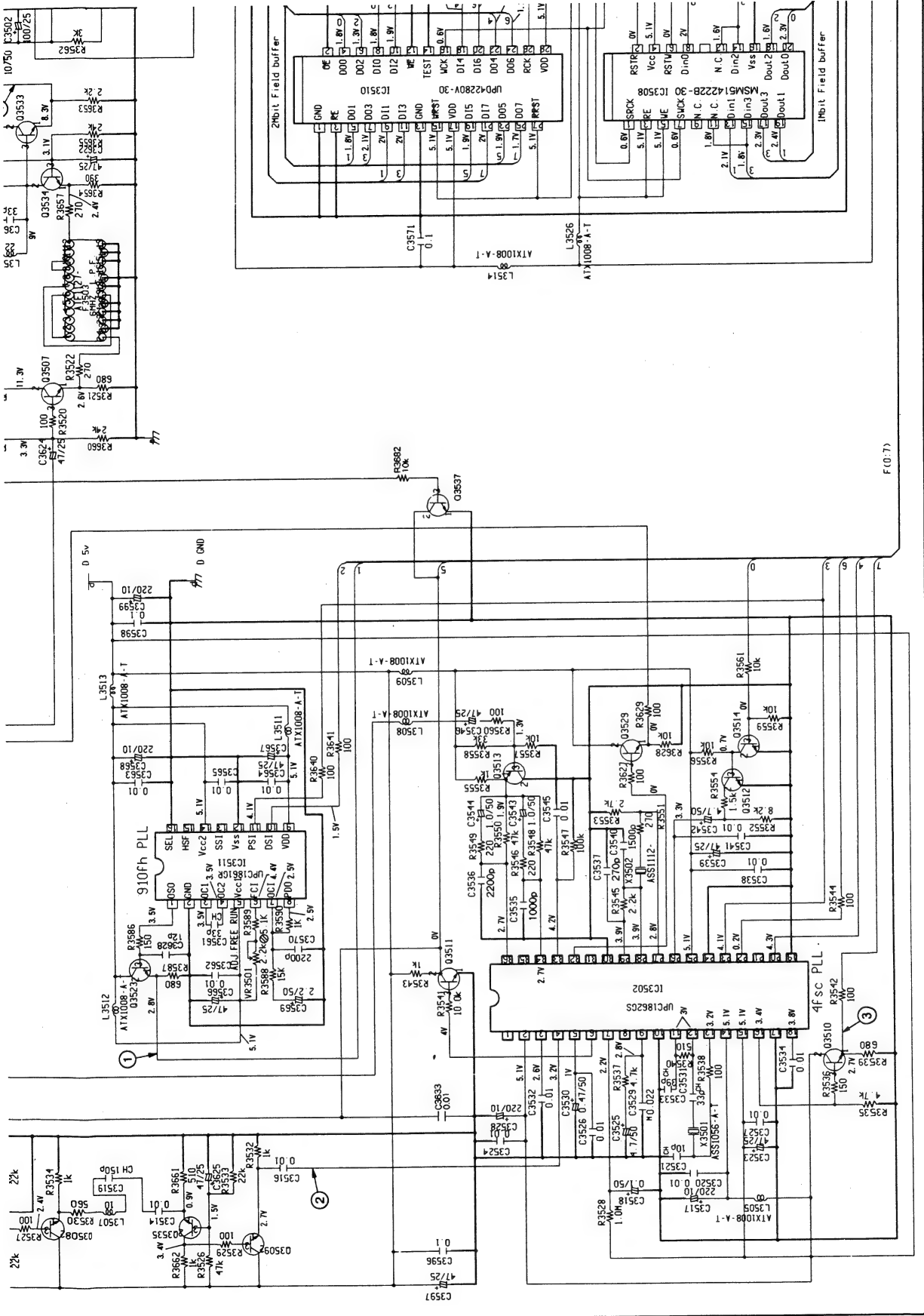


⑥ Q3504 Emitter  
V : 200mV/div. , H : 20  $\mu$ S/div.  
AC range



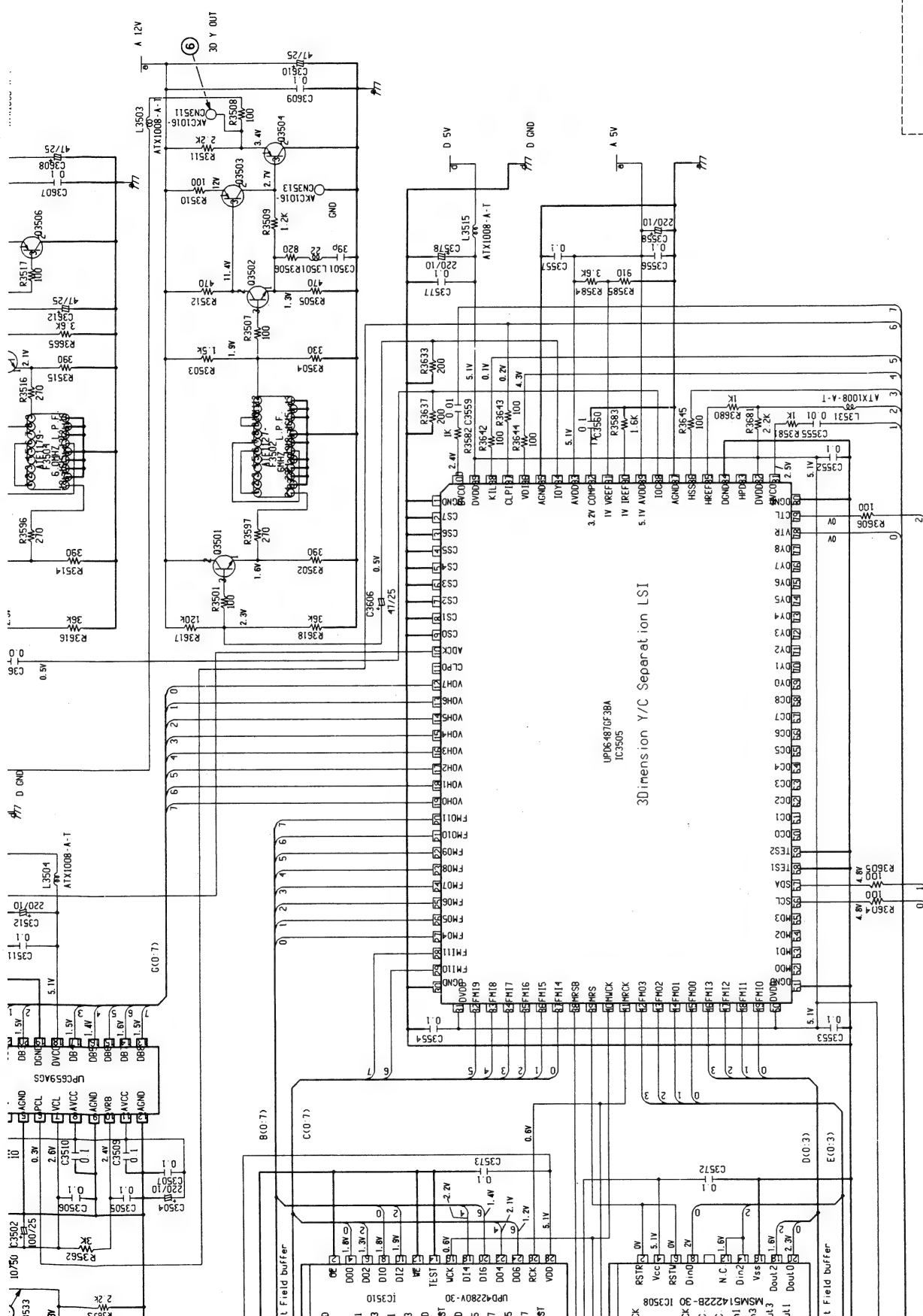


P-a P-b



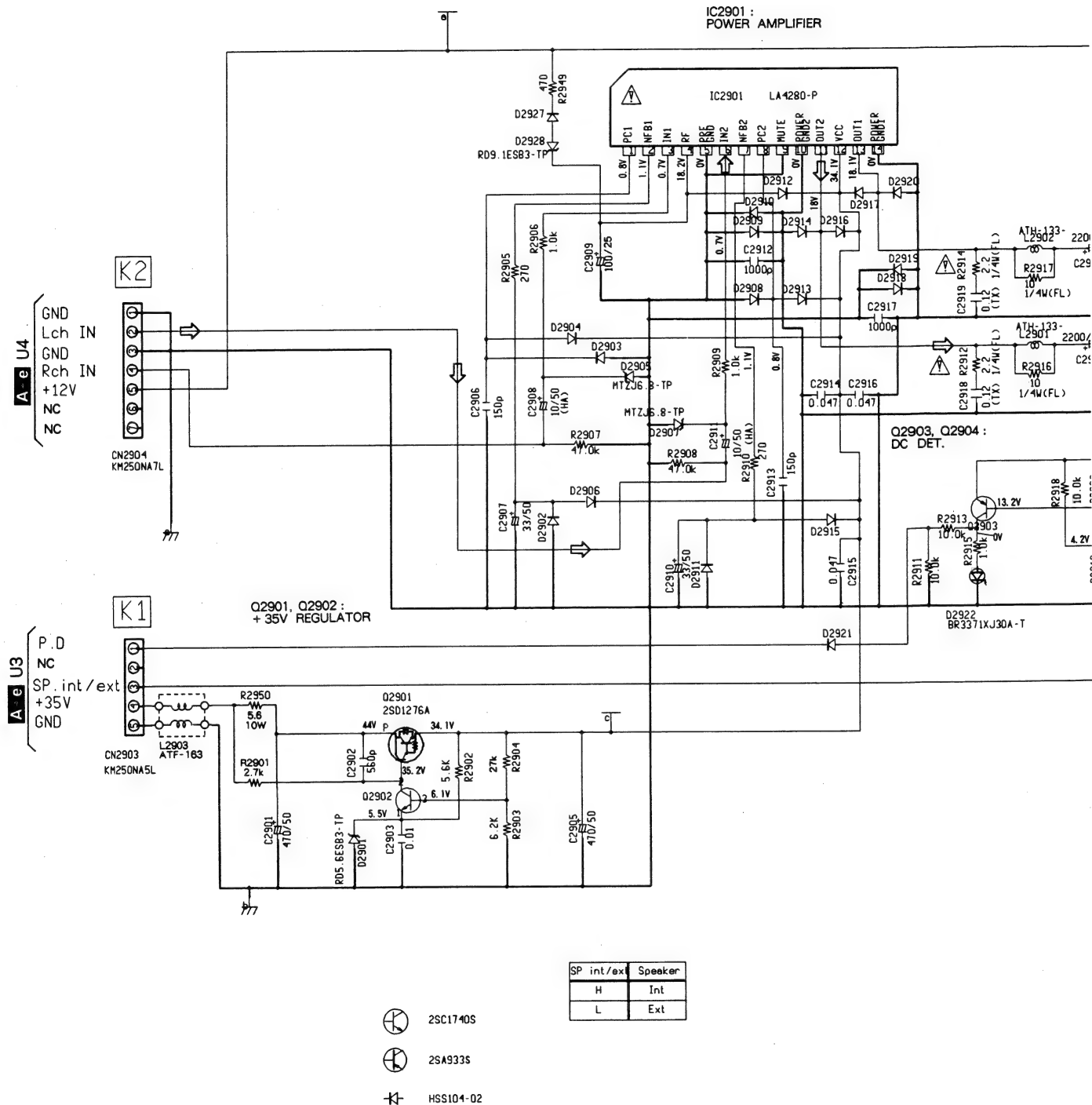


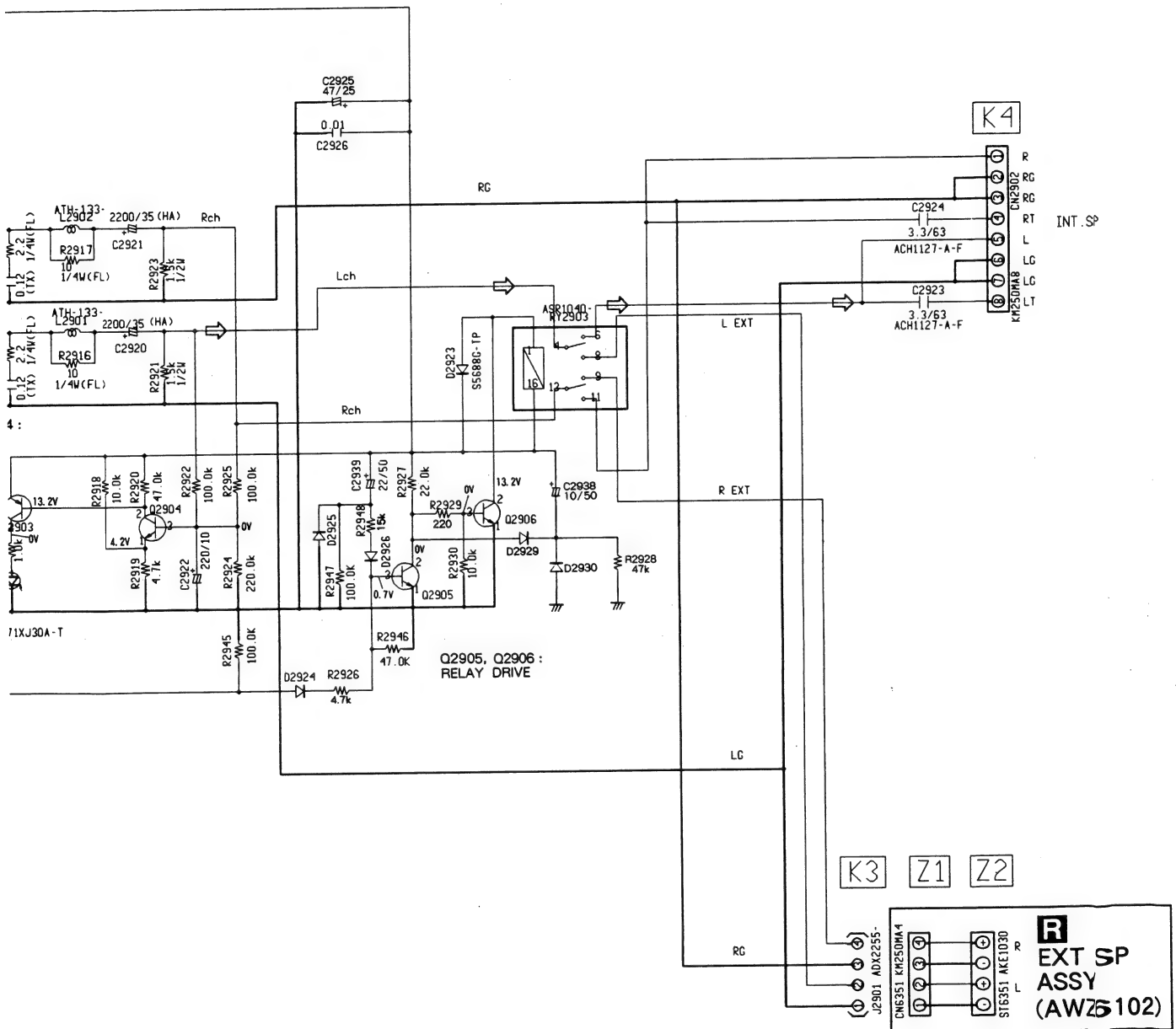




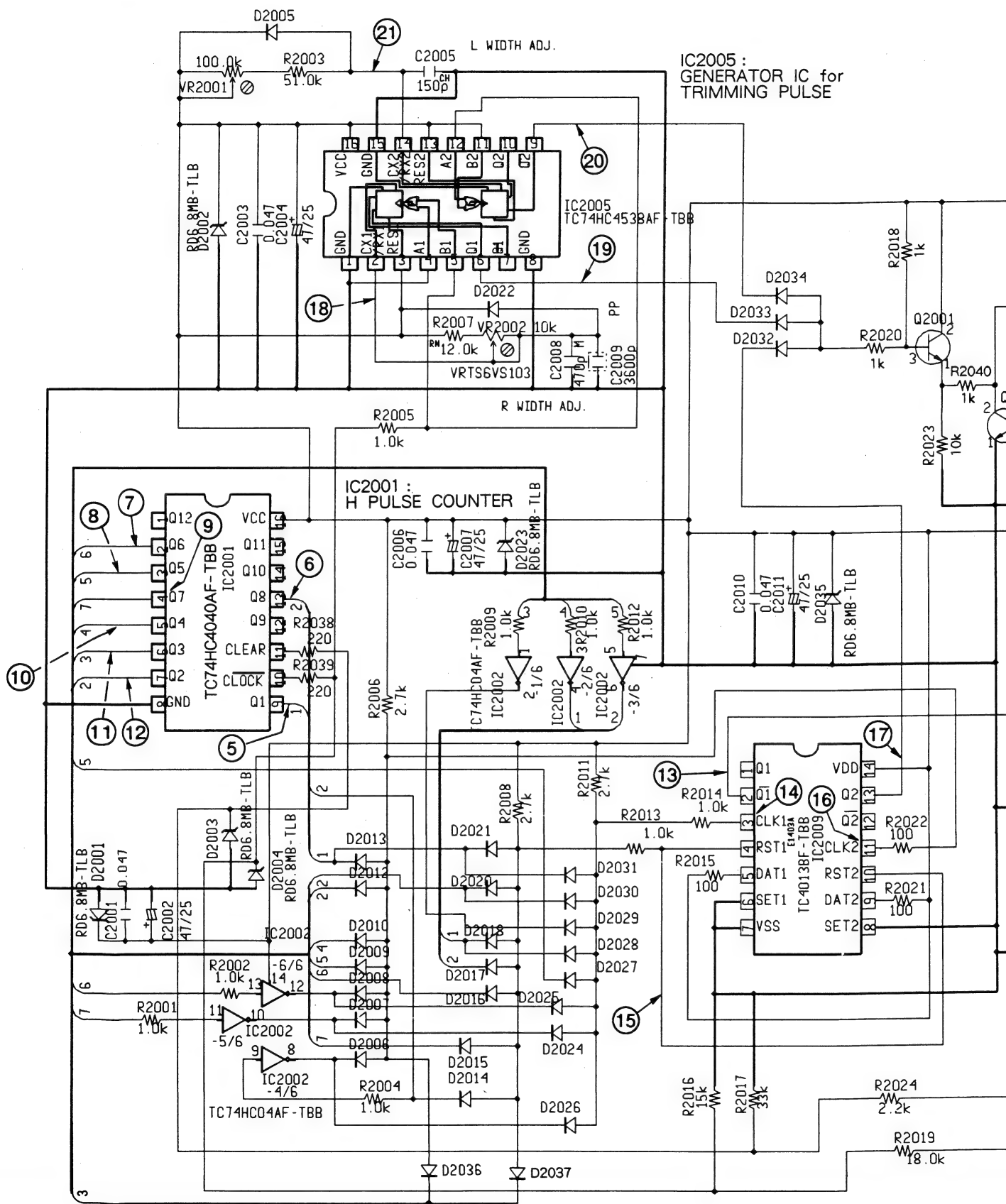
3.18 AUDIO AND EXT SP ASSEMBLIES

**Q**  
AUDIO ASSY (AWZ6109)



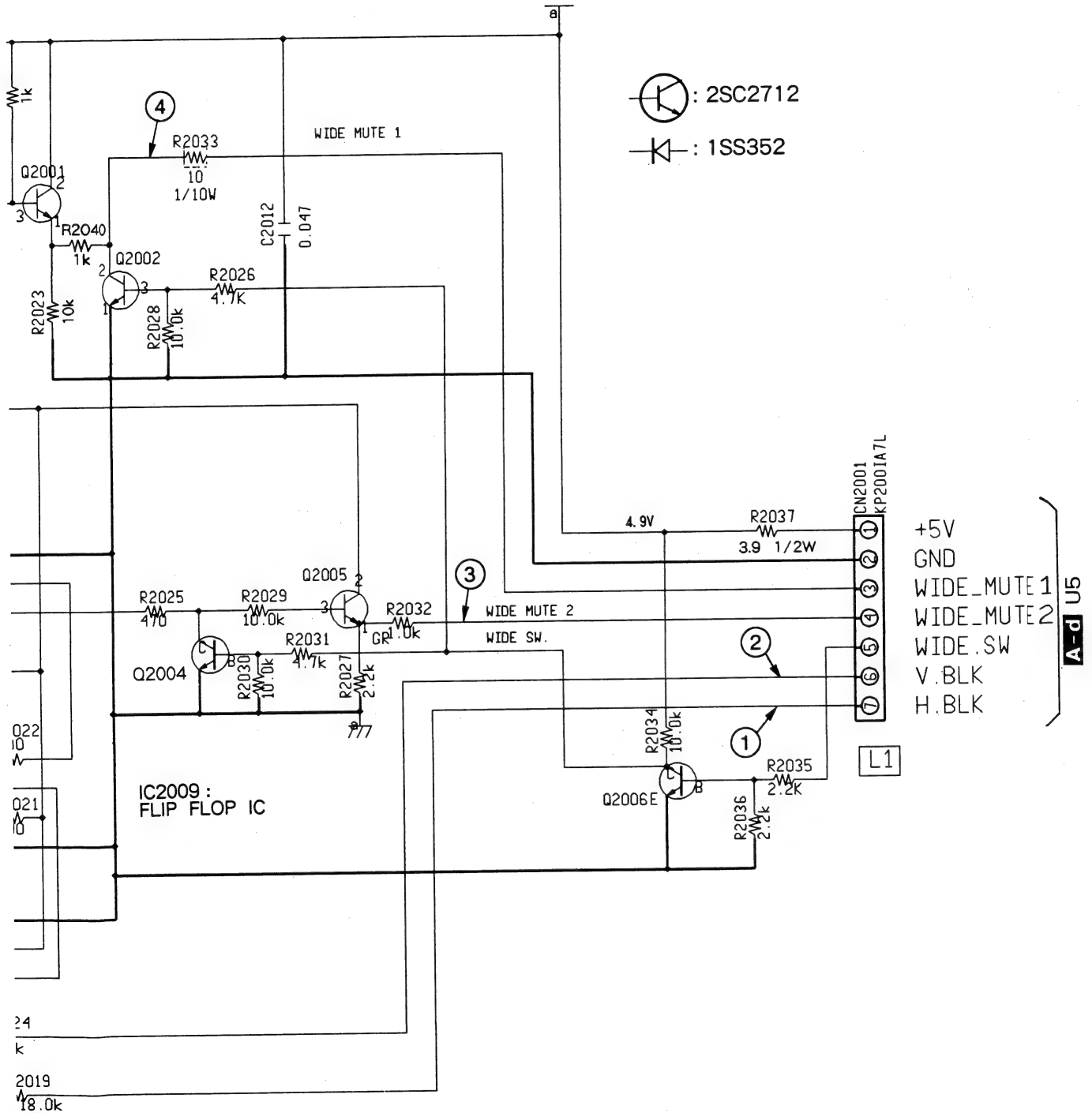


### 3.19 FULL CINEMA MUTE ASSY



**S**

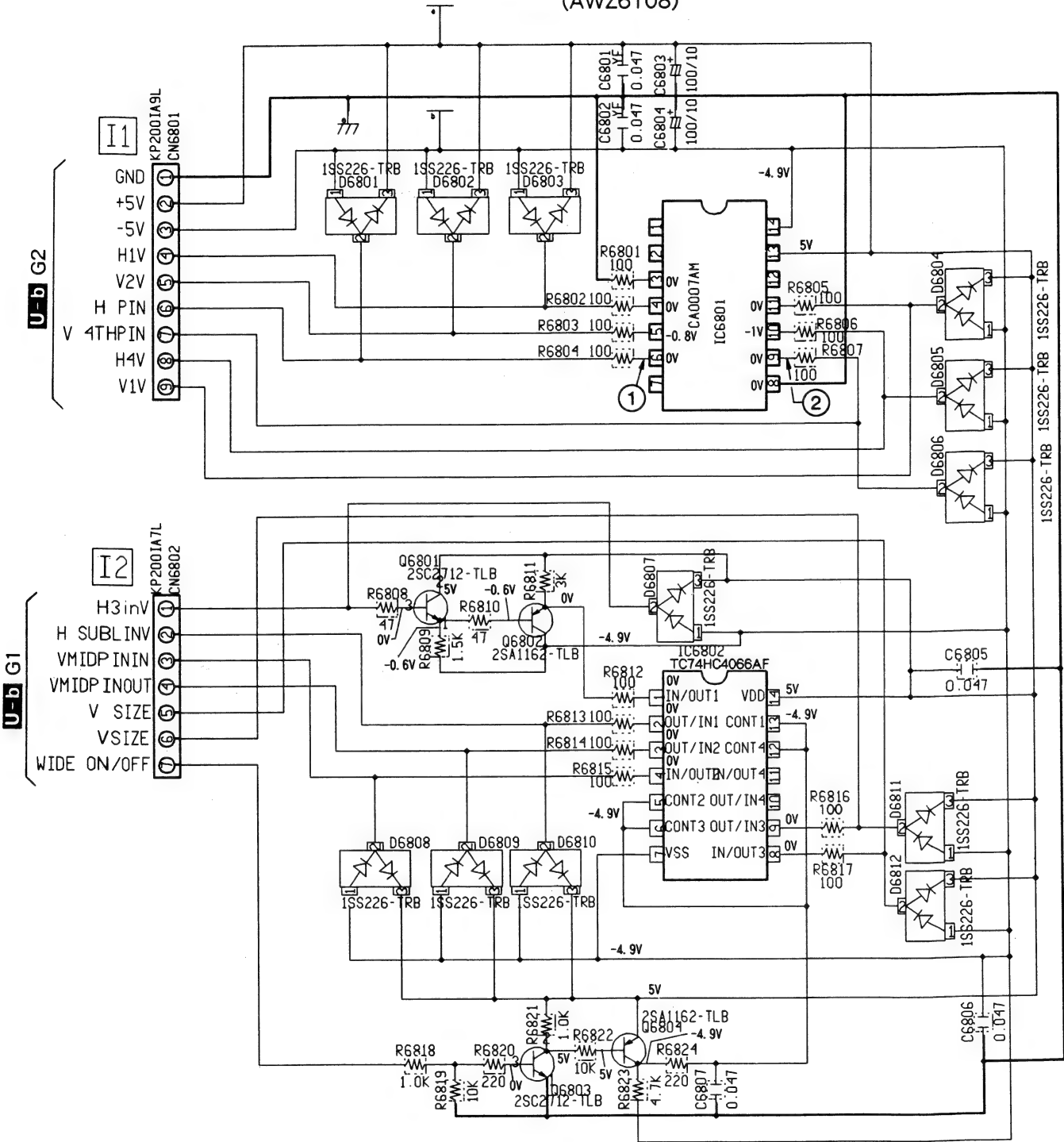
FULL CINEMA MUTE ASSY  
(AWZ6107)

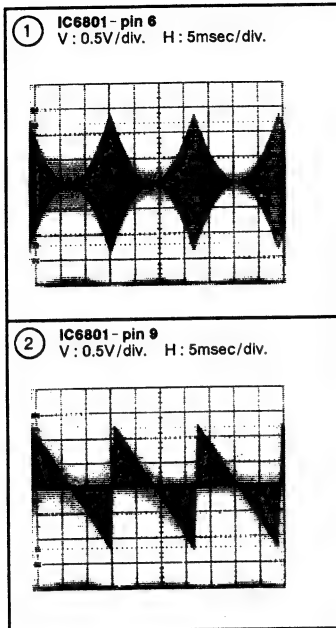


**S**

3.20 FULL CINEMA CONVER ASSY

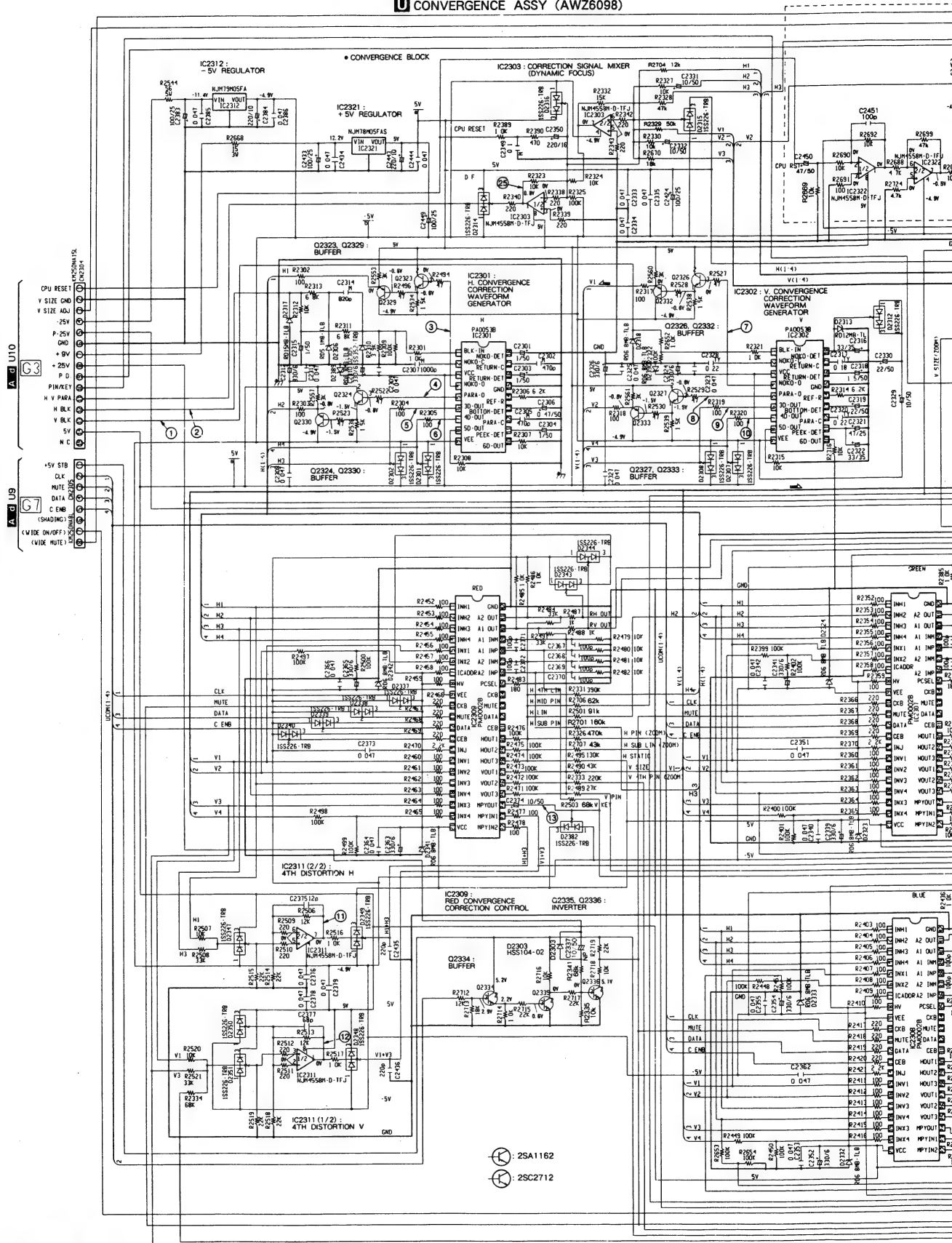
**T** FULL CINEMA CONVER ASSY  
(AWZ6108)



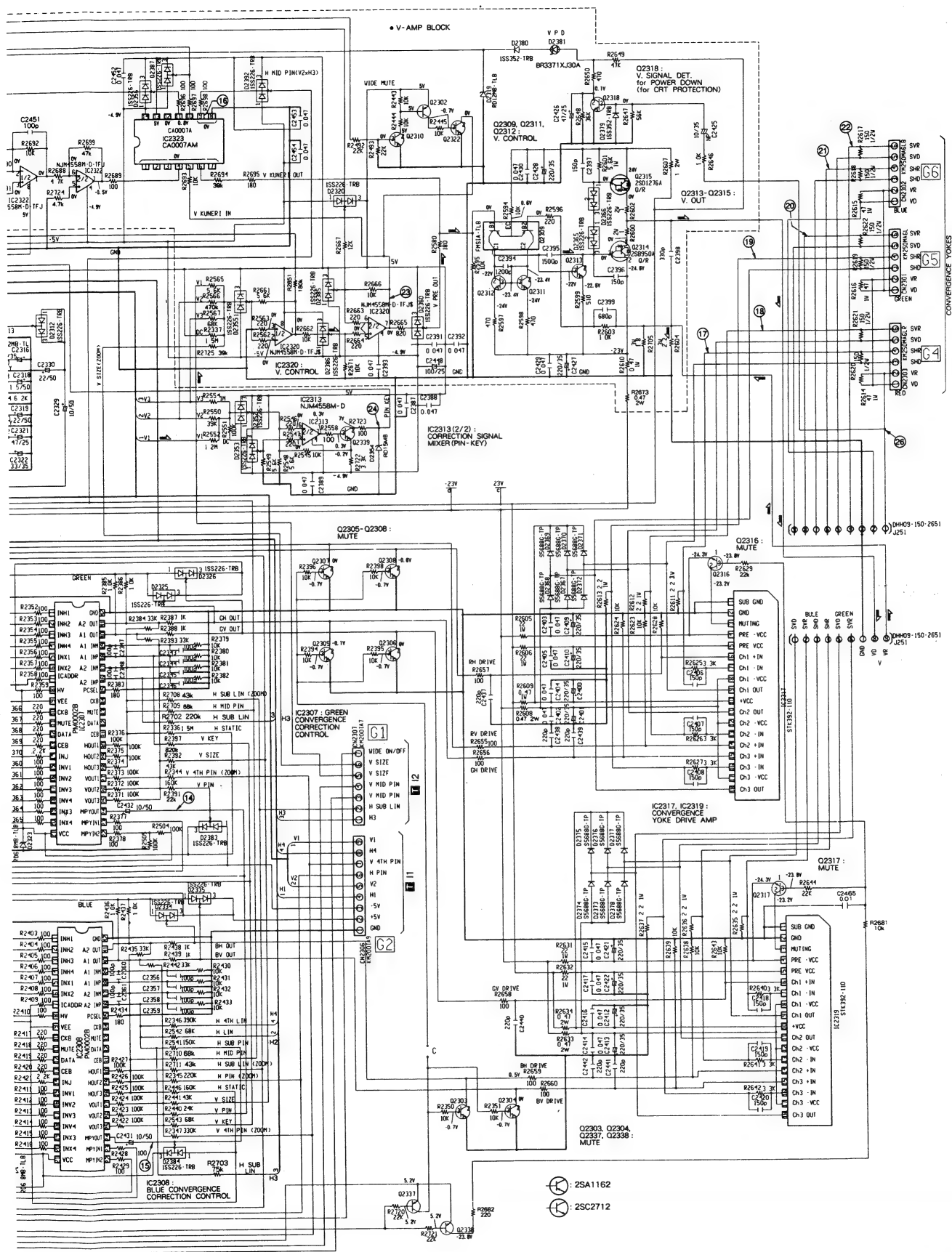


### 3.21 CONVERGENCE ASSY (GUIDE PAGE)

**U CONVERGENCE ASSY (AWZ6098)**

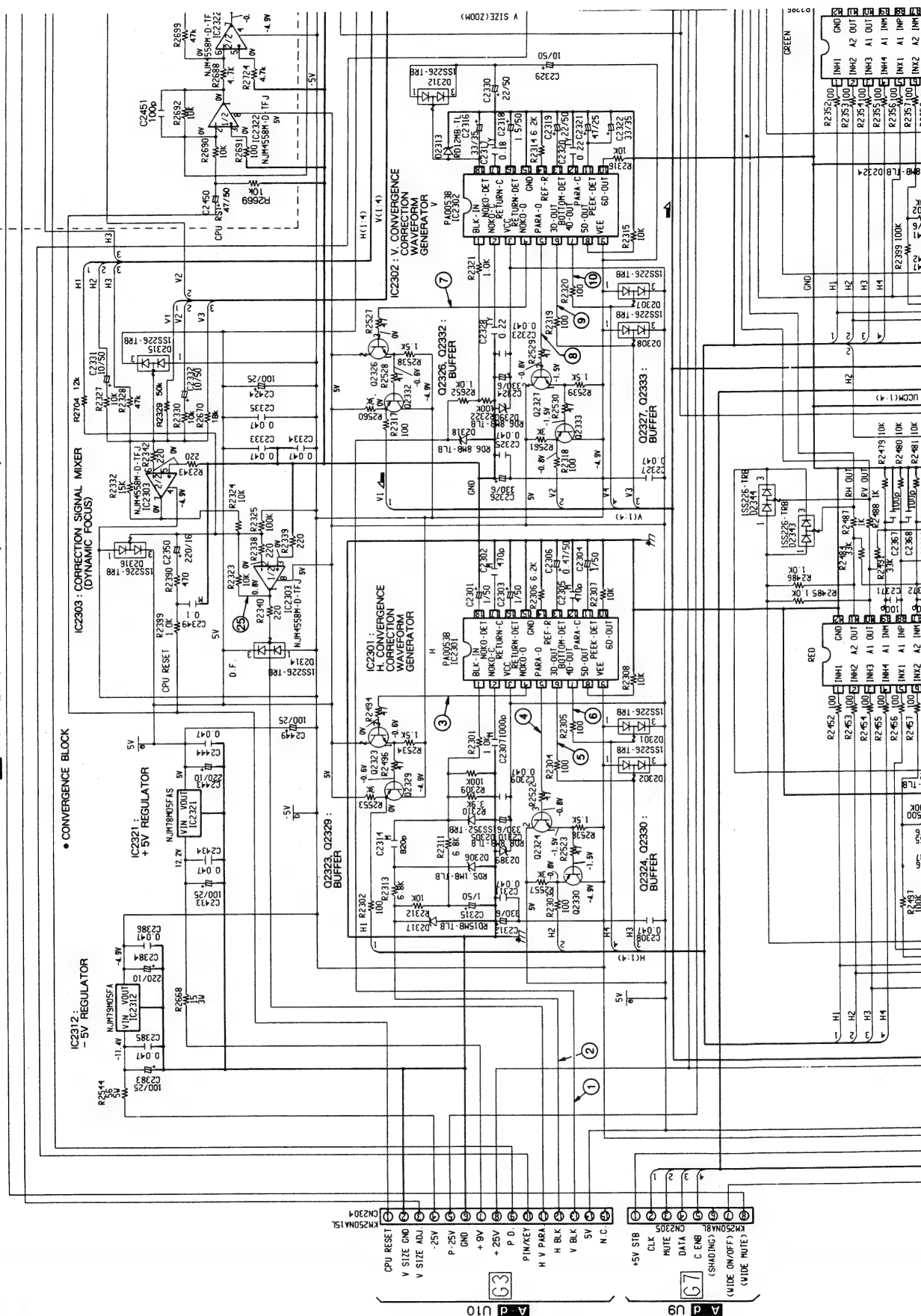






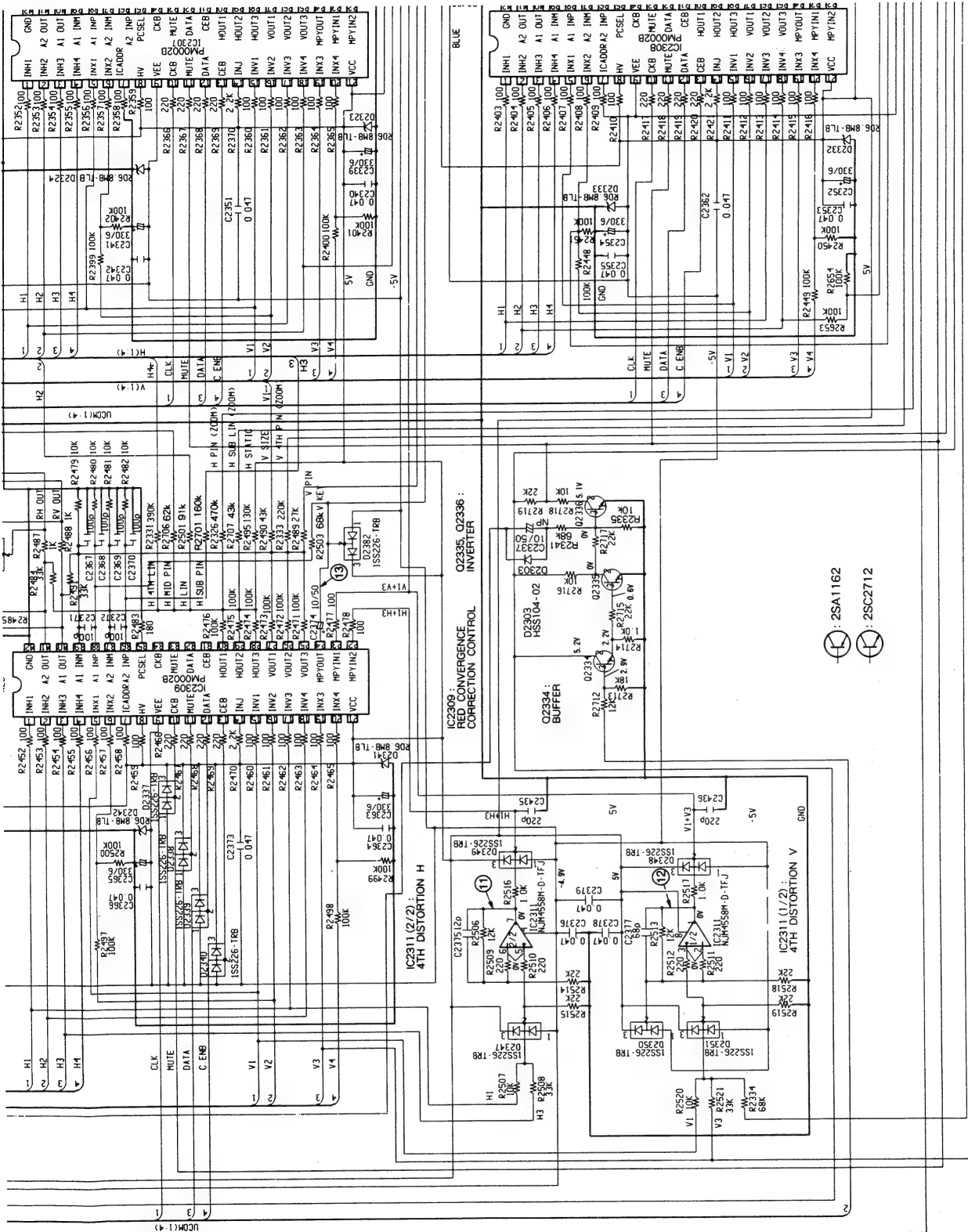
U-a U-b

U CONVERGENCE ASSY (AW76098)

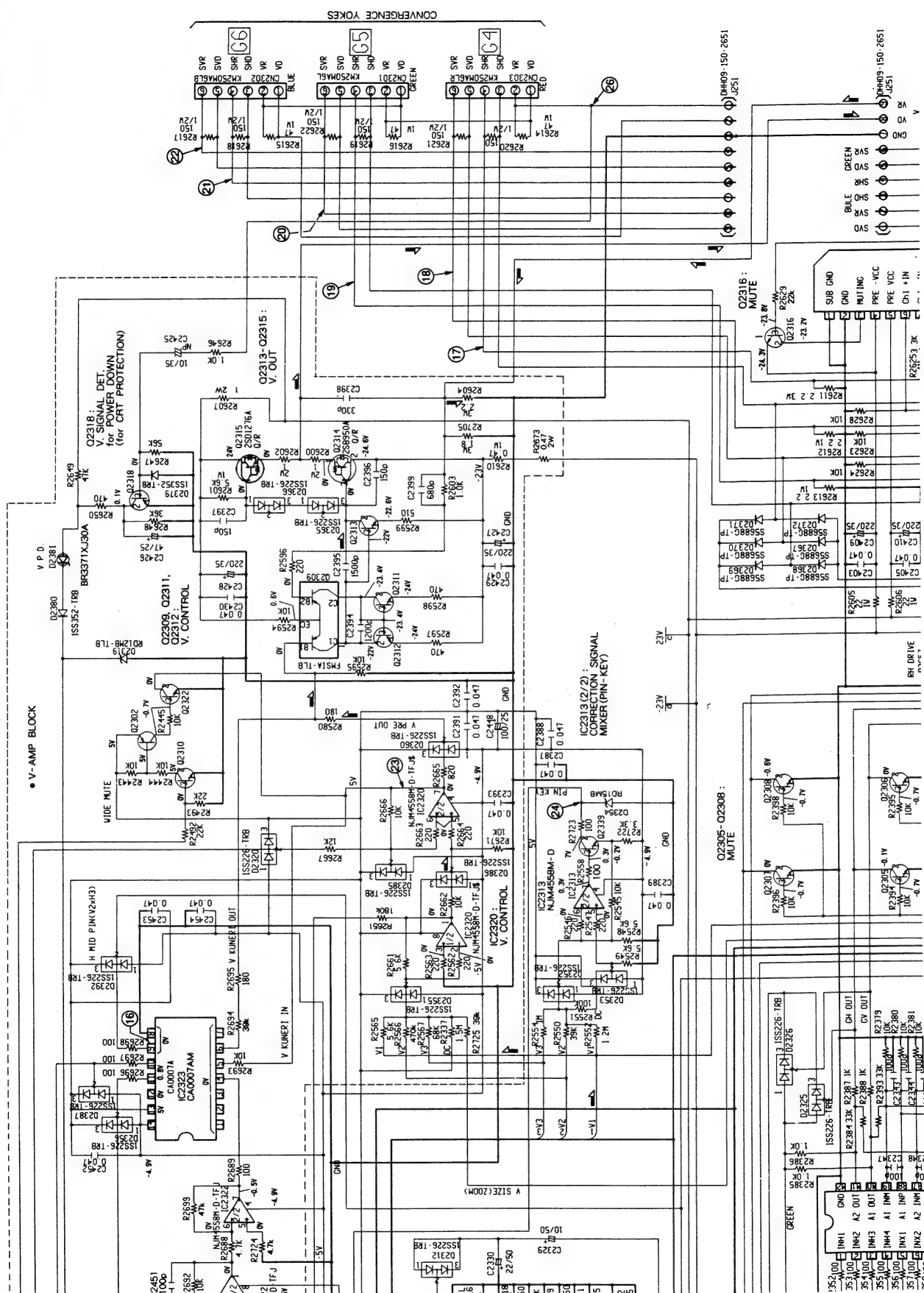


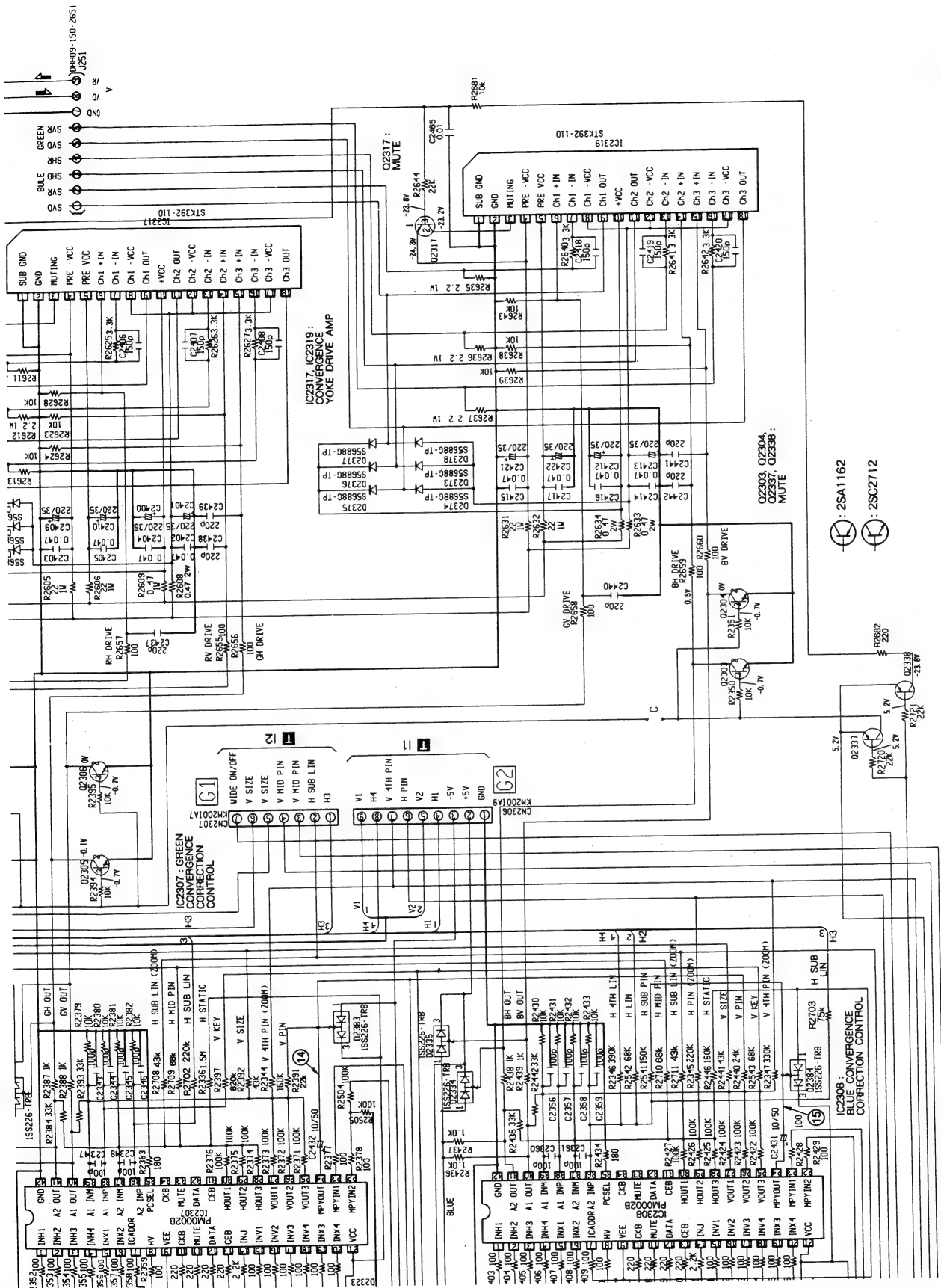
U-a

U-a U-b

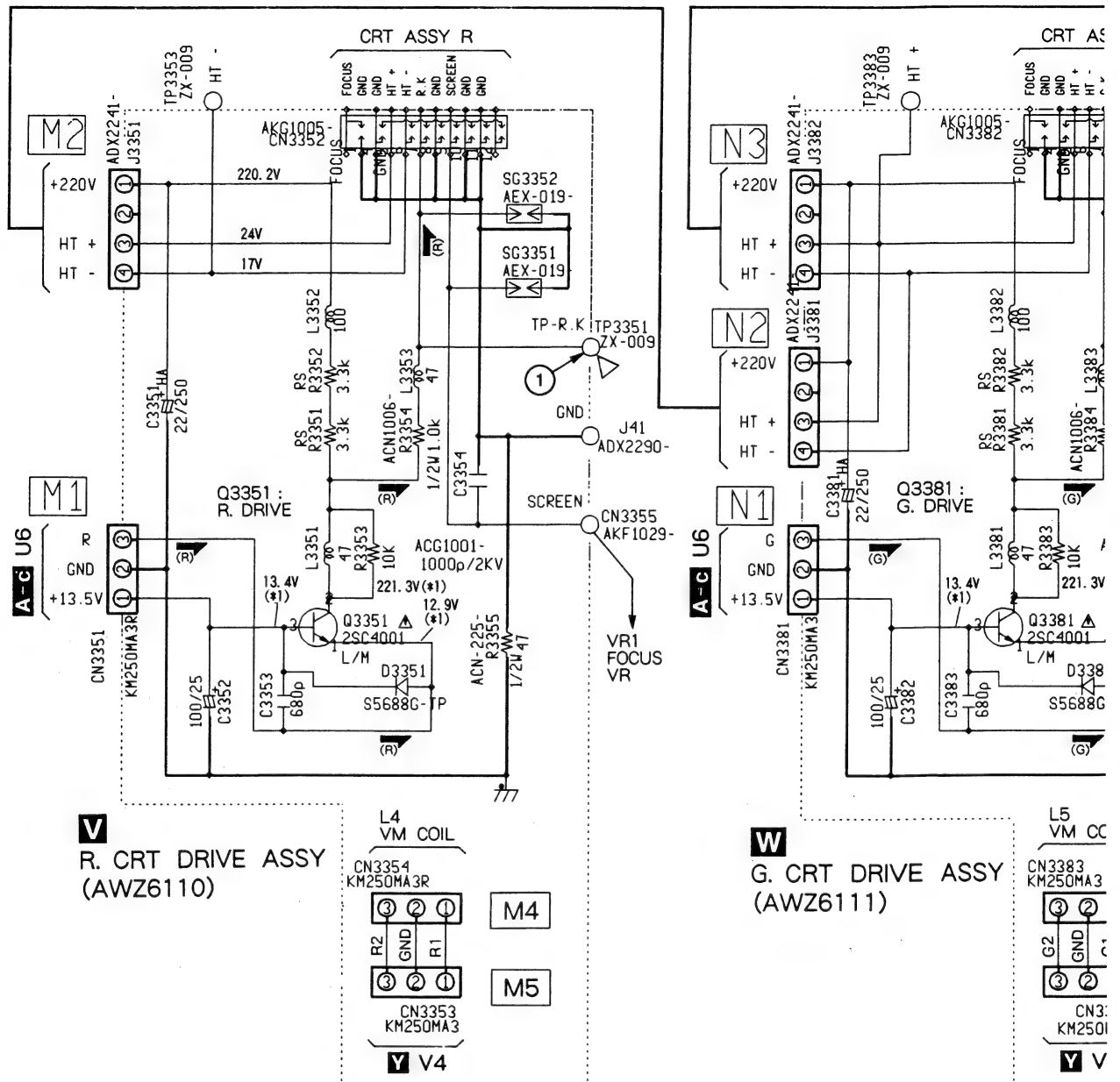


U-a

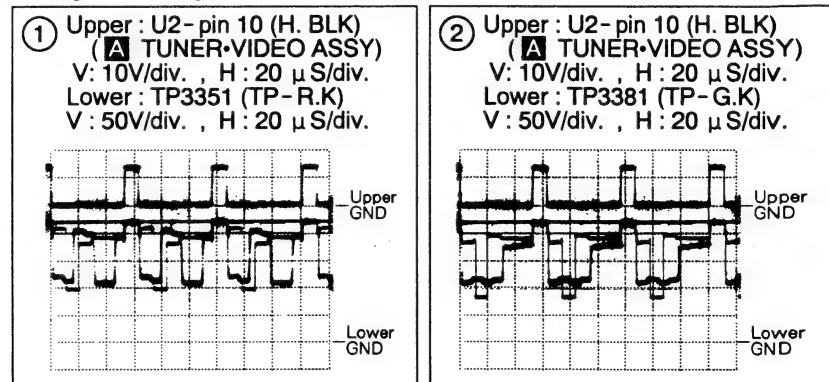


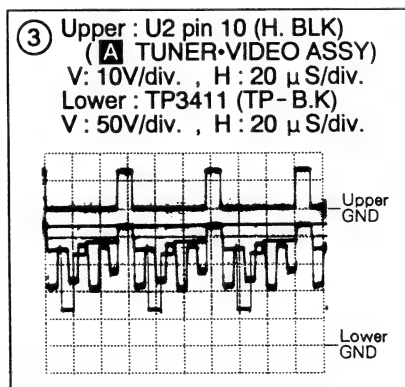


### 3.22 R, G AND B CRT DRIVE ASSEMBLIES



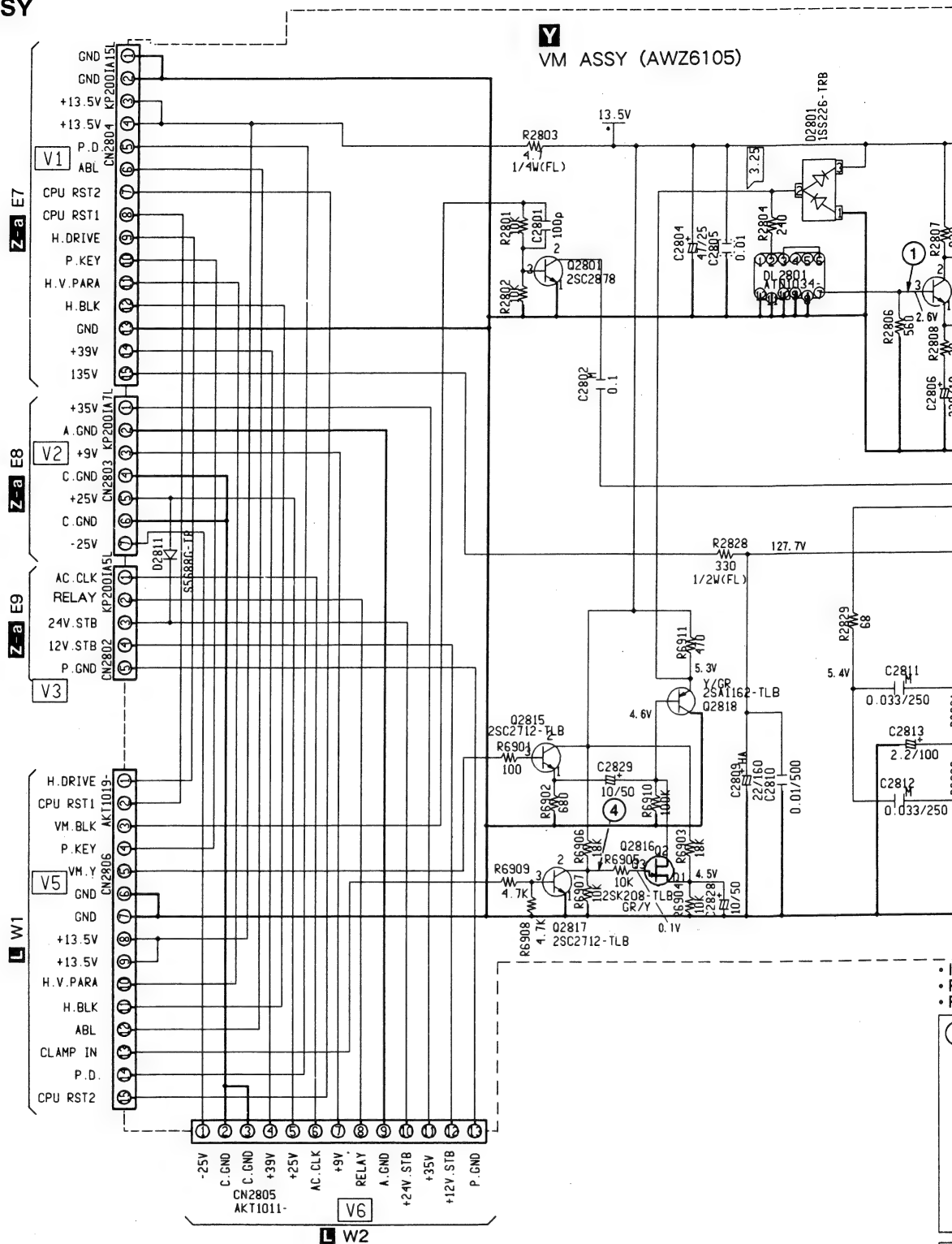
- Input signal : Color bar
- Picture quality : Standard
- Range : DC range (unless otherwise noted)



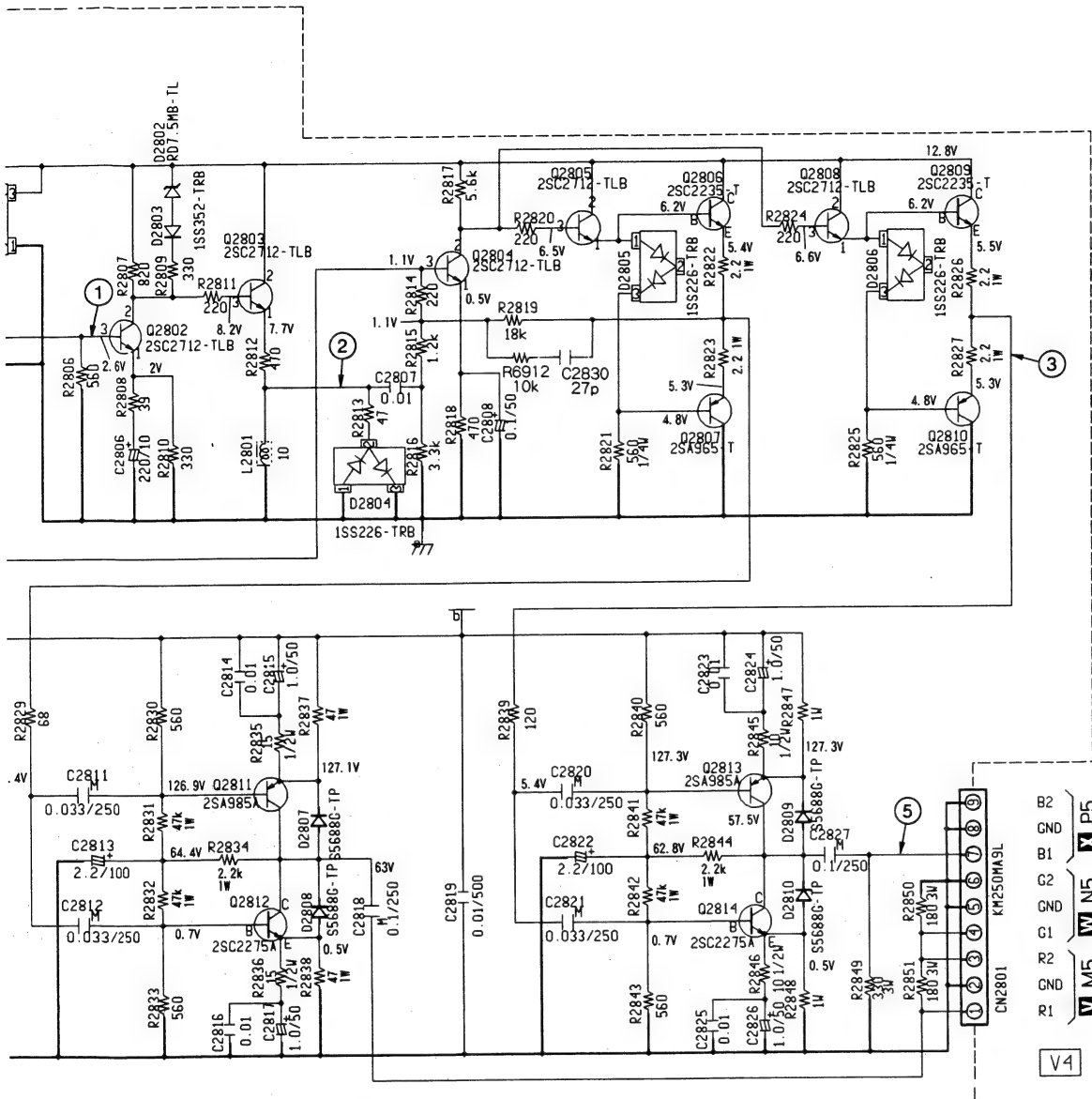




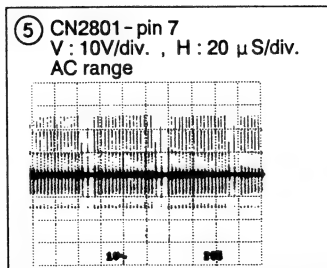
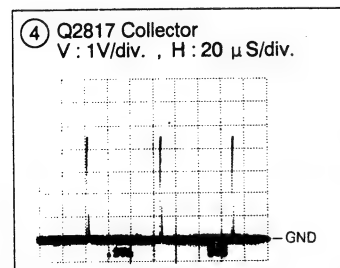
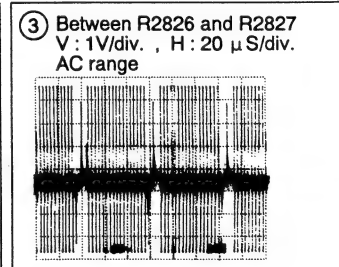
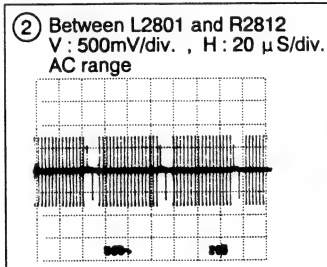
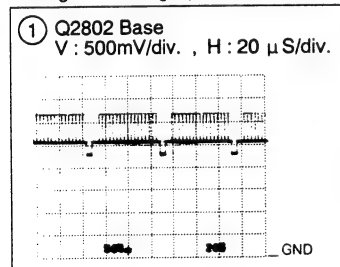
### 3.23 VM ASSY





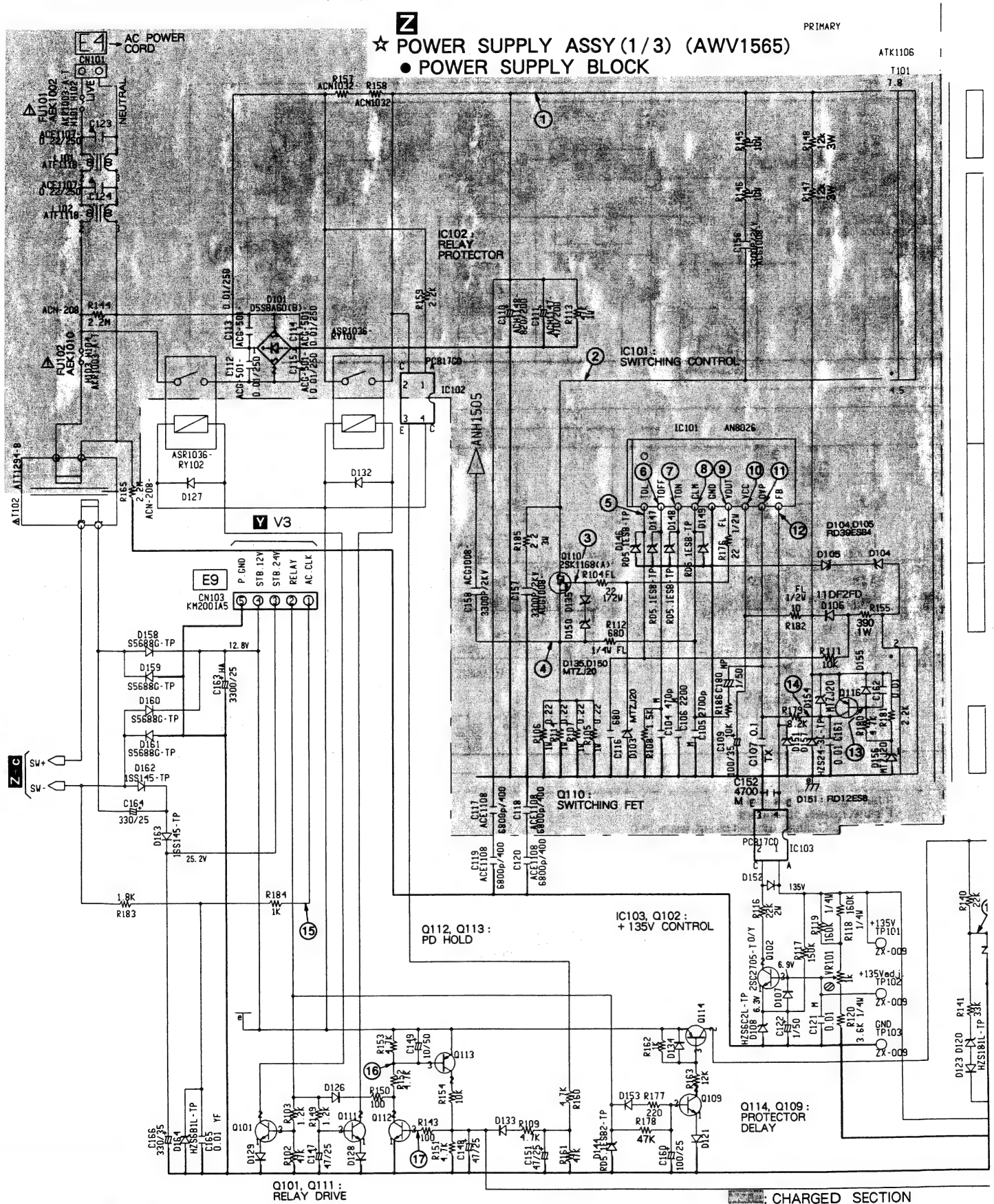


- Input signal : Cross-hatch
- Picture quality : Standard
- Range : DC range (unless otherwise noted)



3.24 POWER SUPPLY ASSY (1/3)

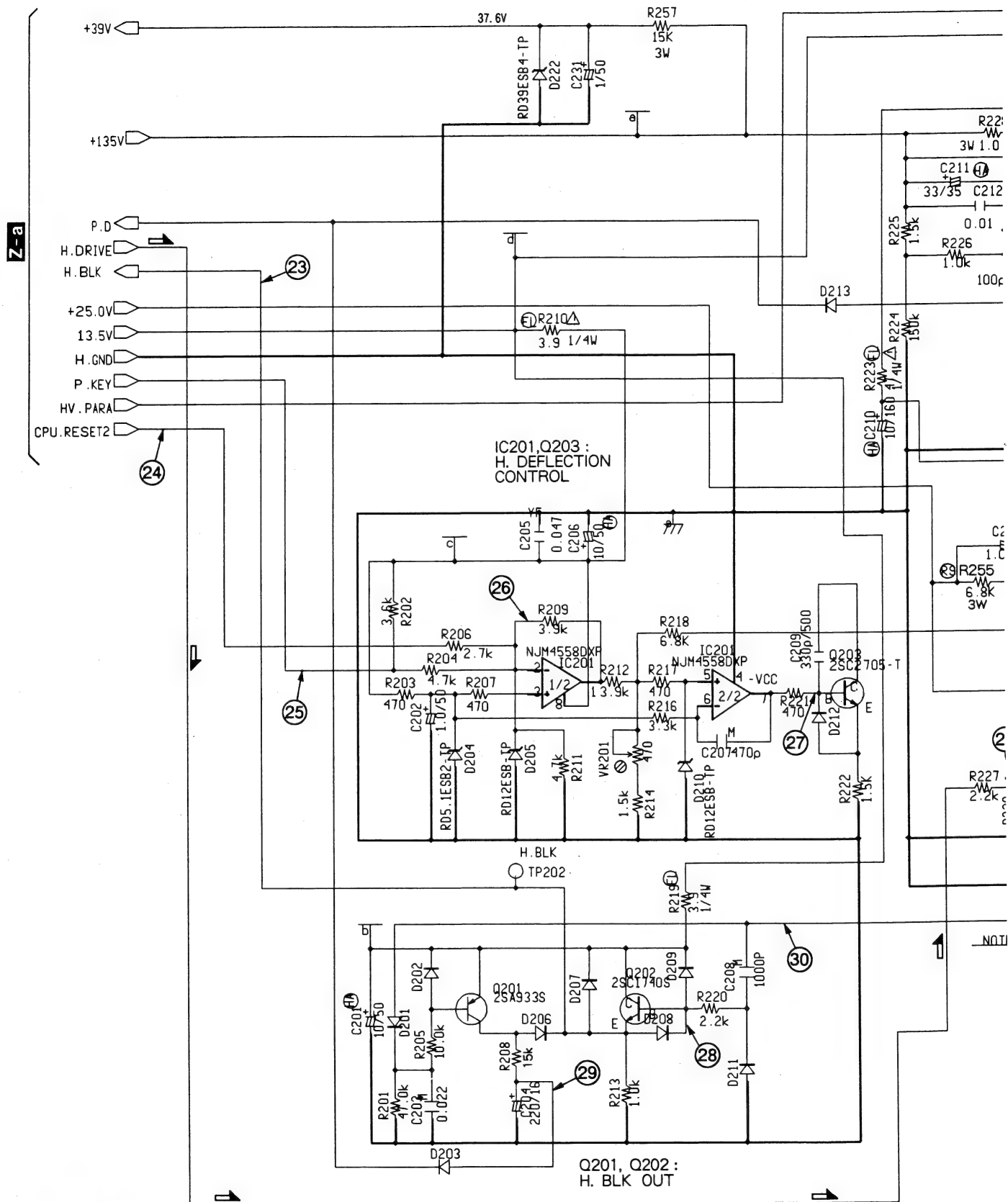
☆ POWER SUPPLY ASSY (1/3) (AWV1565)  
● POWER SUPPLY BLOCK

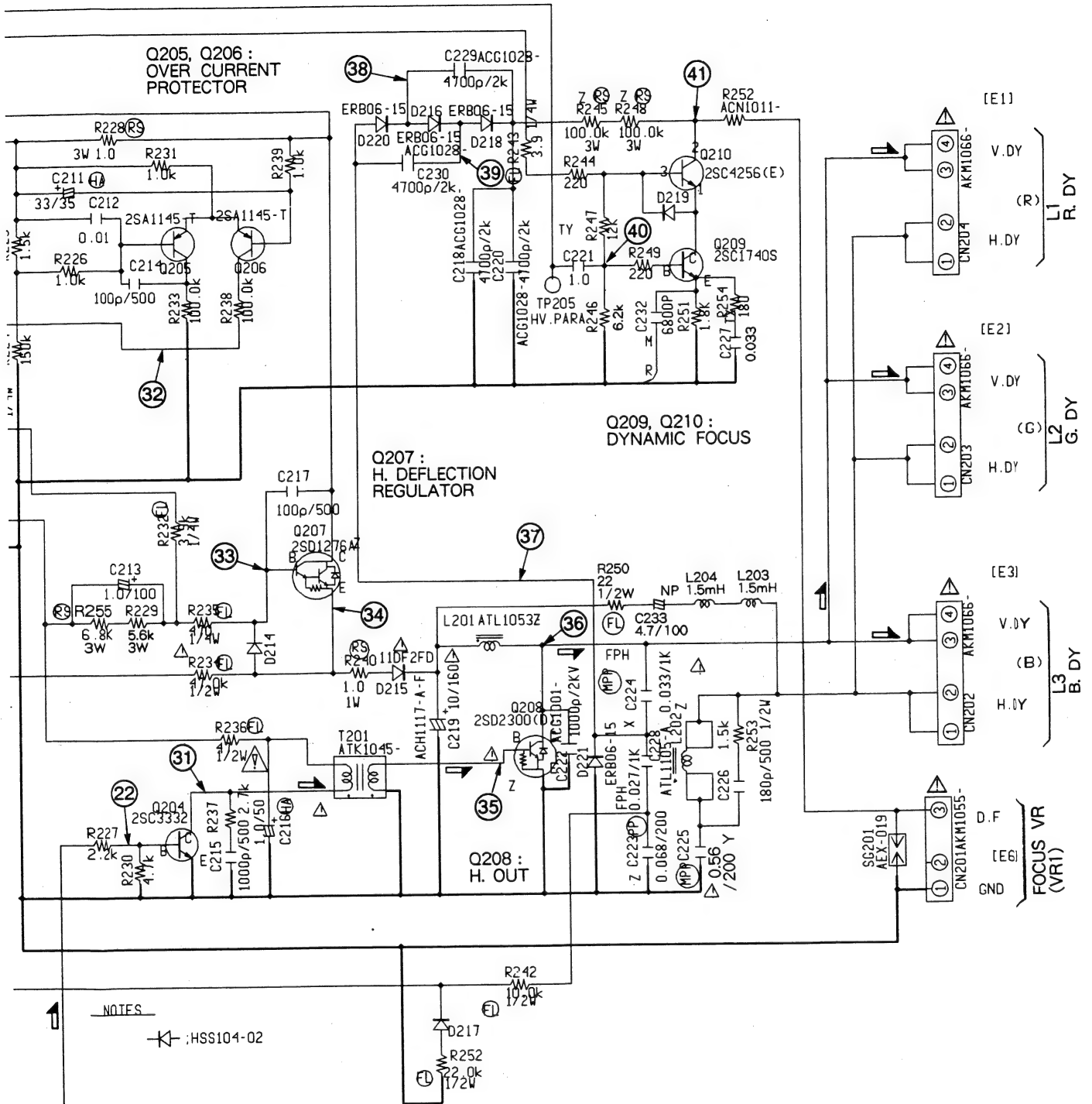




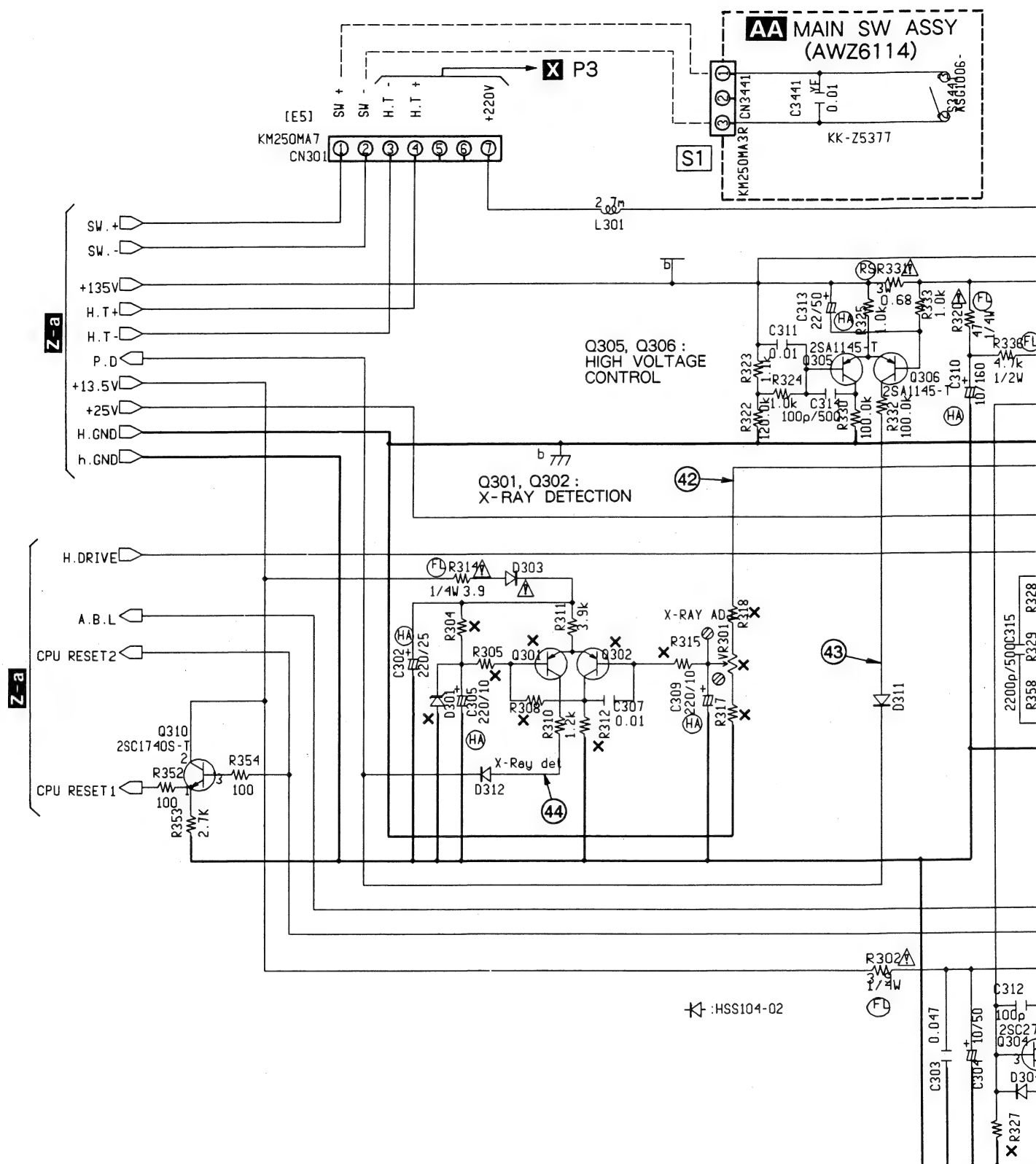
3.25 POWER SUPPLY ASSY (2/3)

**Z**★ POWER SUPPLY ASSY (2/3) (AWV1565)  
• DEFLECTION BLOCK



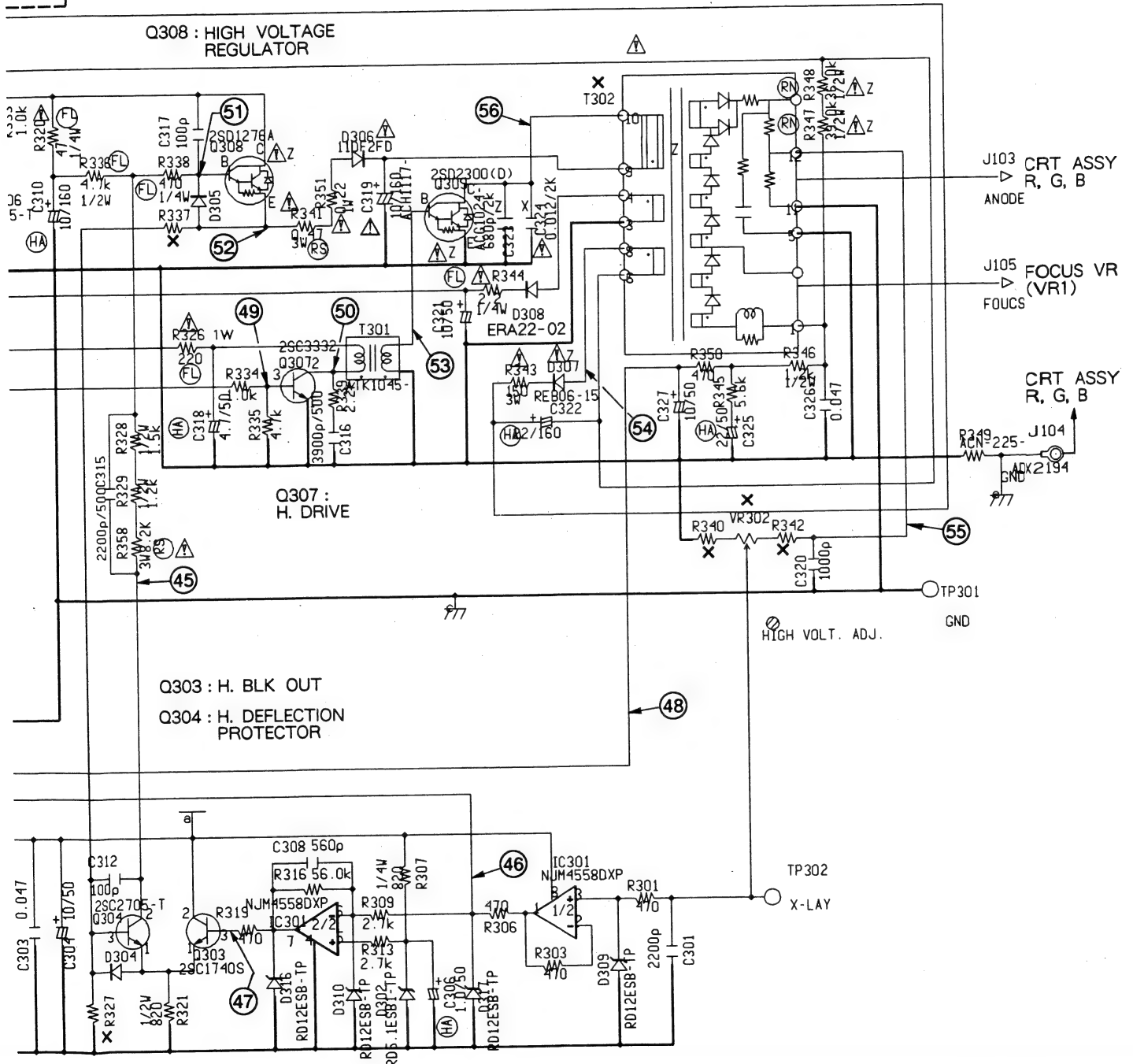


### 3.26 POWER SUPPLY ASSY (3/3) AND MAIN SW ASSY



SY  
34406-  
ASC1006-

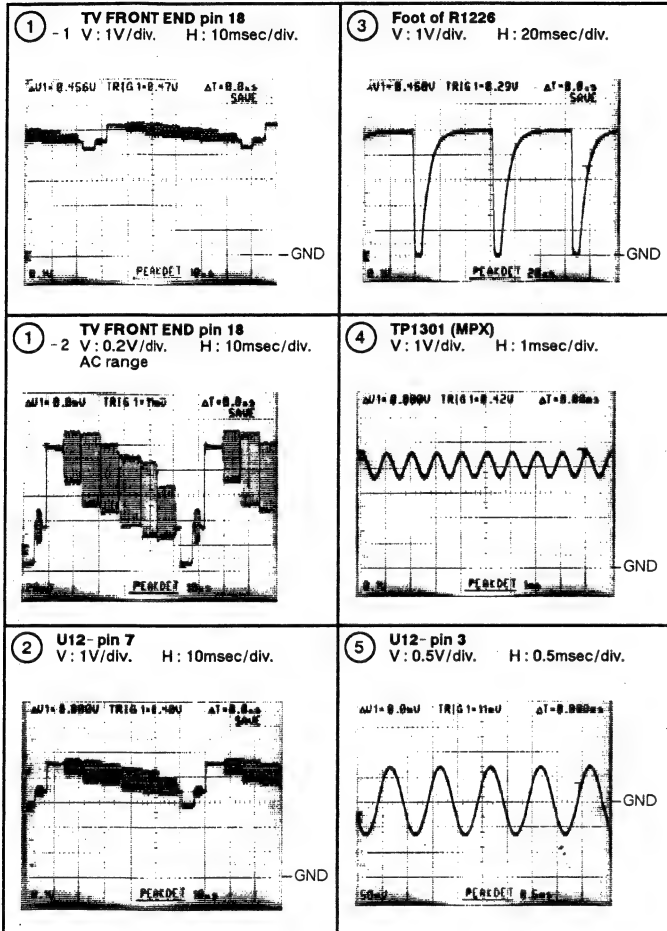
**Z☆ POWER SUPPLY ASSY (3/3) (AWV1565)**  
• HIGH VOLTAGE BLOCK



### 3.27 WAVEFORMS AND VOLTAGES

#### A-a TUNER • VIDEO ASSY (1/4) • TUNER BLOCK

- ANTENNA SELECT : ANT A
- Video signal : NTSC color bar , 87.5% modulation
- Audio signal : 1kHz sinewave,  $\pm 25\text{kHz}$  deviation
- Range : DC range (Unless otherwise noted)

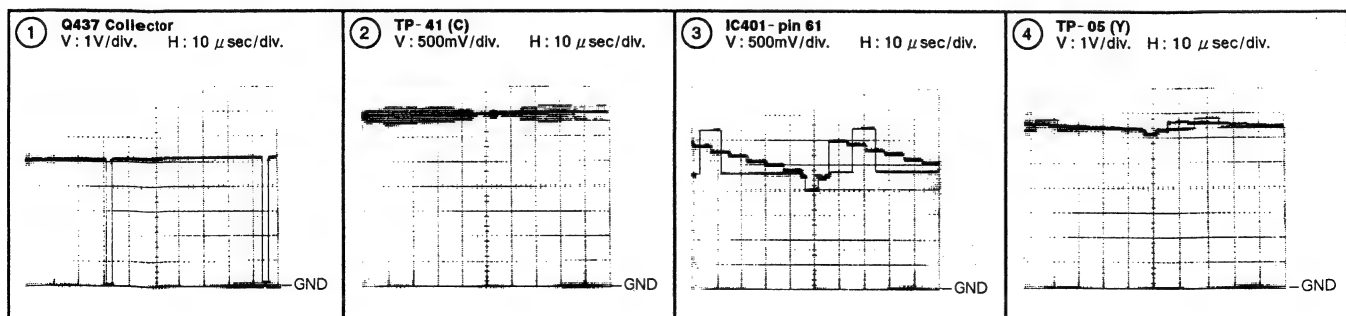


#### IC1301 (CXA1734S)

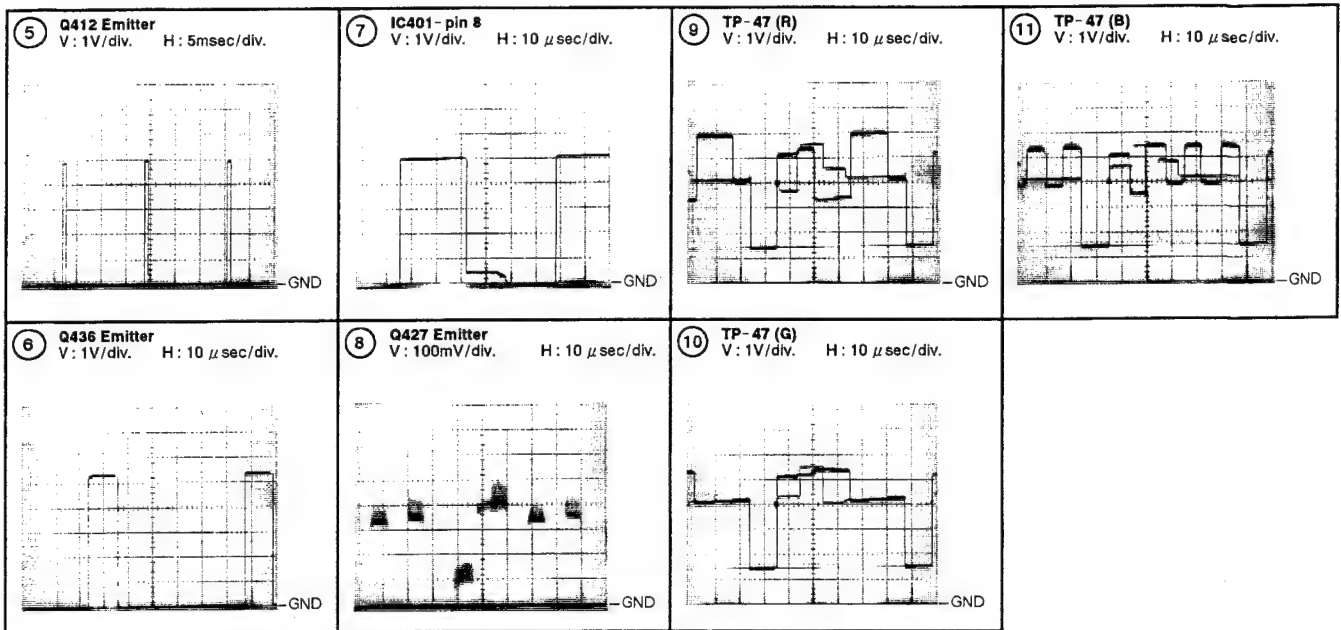
Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	—	16	3.1
2	—	17	0
3	0	18	4.0
4	0	19	4.0
5	1.3	20	4.1
6	1.3	21	4.0
7	4.0	22	1.7
8	4.0	23	4.0
9	6.4	24	4.0
10	5.3	25	4.0
11	4.0	26	1.7
12	4.5	27	1.3
13	4.0	28	4.1
14	4.0	29	4.1
15	8.9	30	0

#### A-b, c TUNER • VIDEO ASSY (2/4) • VIDEO BLOCK

- Input signal : EIA color bar, LD/DVD input
- Picture quality : Standard
- Range : DC range (Unless otherwise noted)







IC401 (TA8845BN)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	12	8.1	23	0	34	5.5	45	0.5	56	3.2
2	0	13	1.1	24	0	35	5.5	46	8.9	57	4.6
3	6.1	14	0	25	0	36	0.5	47	3.0	58	4.7
4	0	15	4.8	26	0	37	9.0	48	12.2	59	6.0
5	6.1	16	4.8	27	0	38	9.0	49	0.5	60	0
6	2.2	17	0	28	0	39	4.0	50	7.2	61	2.3
7	9.0	18	3.5	29	4.5	40	6.2	51	4.8	62	5.0
8	2.0	19	3.5	30	4.5	41	9.0	52	6.5	63	0
9	0	20	3.5	31	4.5	42	6.1	53	6.0	64	0
10	5.5	21	12.2	32	1.9	43	8.7	54	3.2		
11	0.7	22	0	33	0.5	44	0	55	8.9		

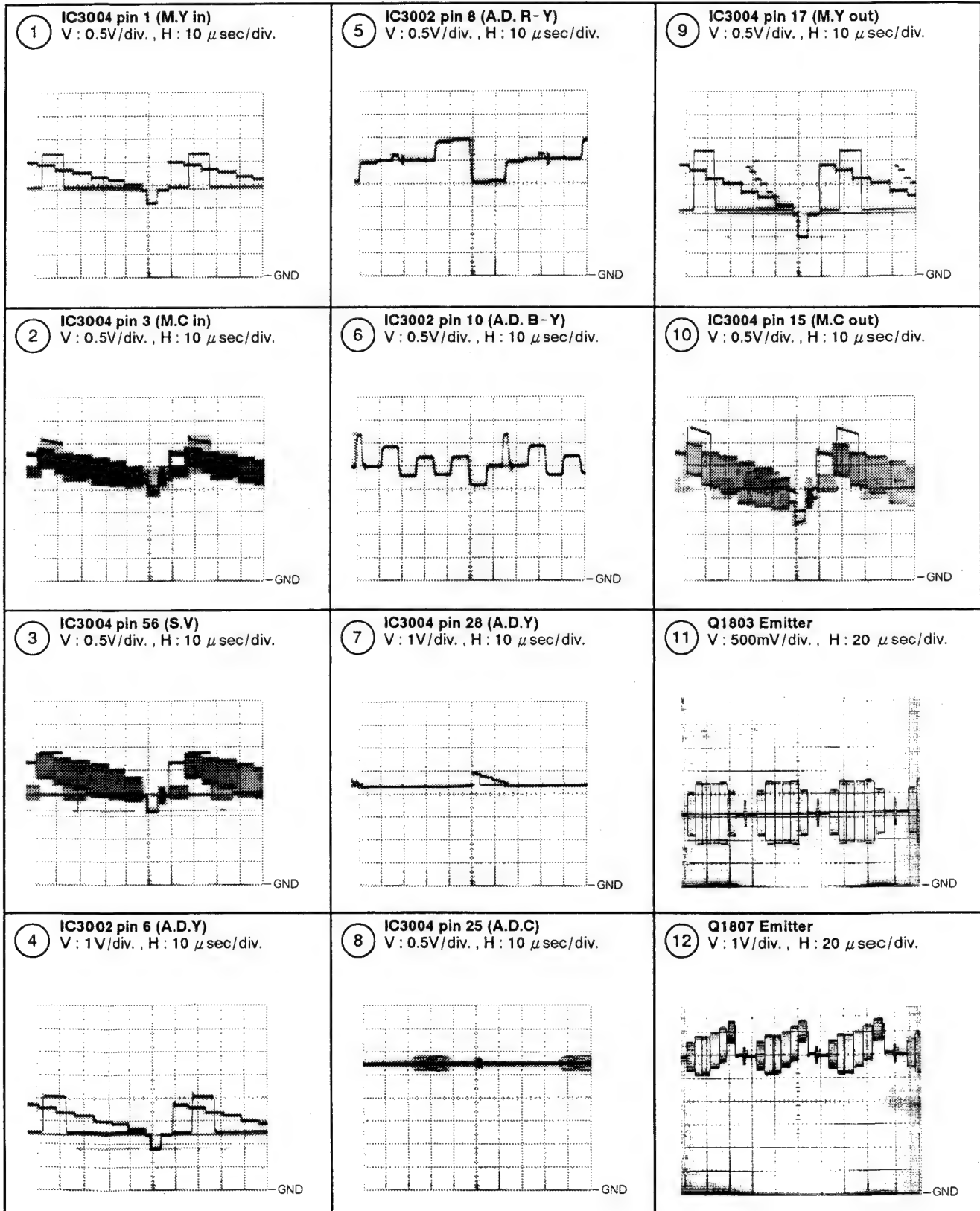
**A-d** TUNER • VIDEO ASSY (3/4)  
• UCOM BLOCK

IC801 (PD5363A)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	4.8	12	5.1	23	4.9	34	5.1	45	4.5	56	2.1
2	4.8	13	0	24	5.1	35	5.1	46	0	57	6.7
3	2	14	0	25	0	36	5.1	47	5.1	58	0
4	5	15	5.1	26	0	37	0	48	0	59	8.4
5	4.9	16	0	27	0	38	5.1	49	5.9	60	1.5
6	4.9	17	5.1	28	—	39	0	50	5.1	61	0
7	4.9	18	0	29	0	40	0	51	0	62	0
8	0	19	5.1	30	4.2	41	0	52	0	63	0
9	3	20	0	31	4.6	42	4.5	53	4.5	64	0
10	5.1	21	0	32	0	43	5.1	54	0		
11	0	22	0	33	5.1	44	1.5	55	7.6		

**O-a P IN P ASSY (1/3)**  
**• P IN P BLOCK**

- Input signal : Color bar (LD)
- P IN P : OFF
- DC range ( Unless otherwise noted. )



Input signal : Color bar

IC3004 (HA11579)

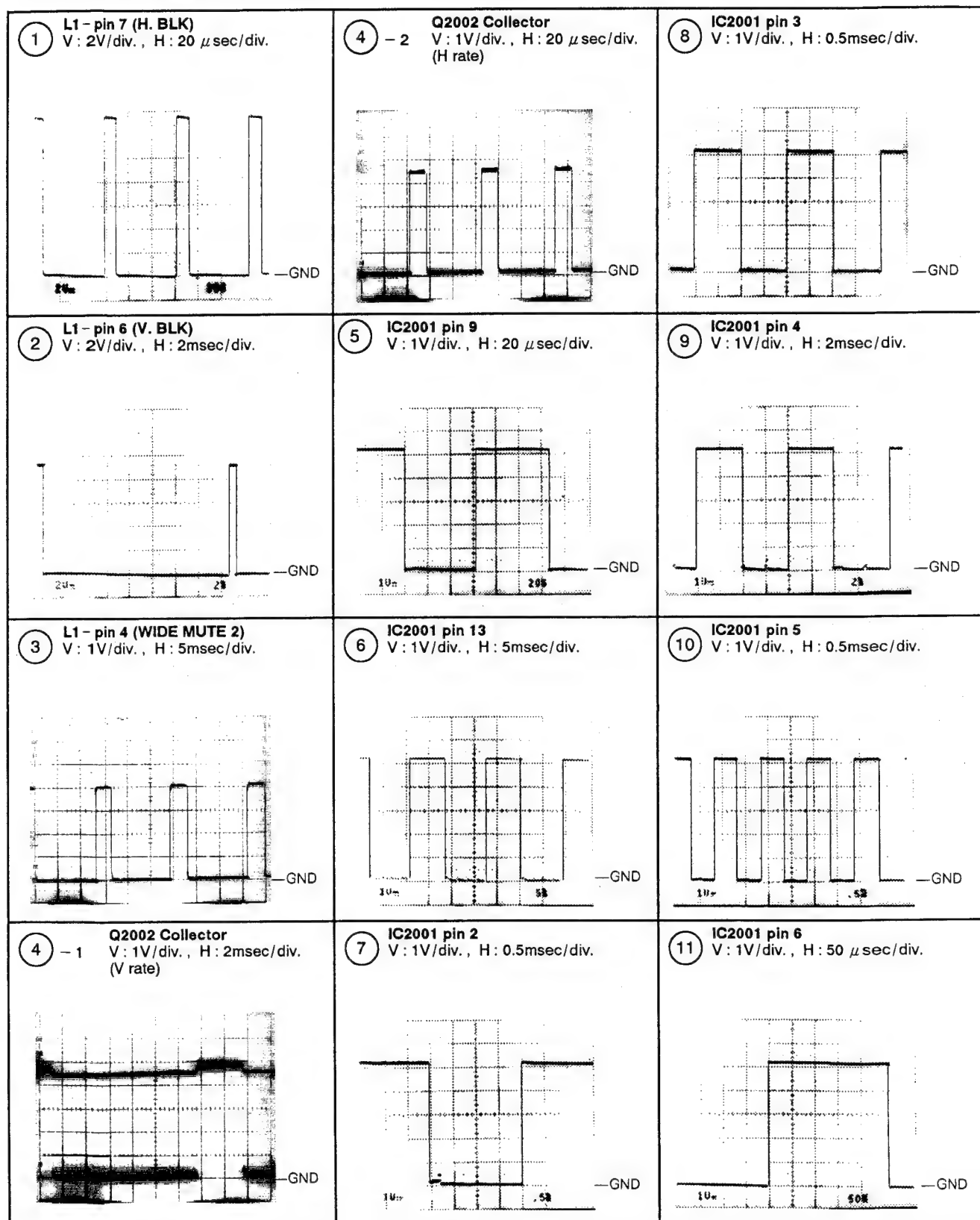
No.	Voltage (V)	No.	Voltage (V)
1	2.14	29	2.55
2	0	30	2.53
3	2.47	31	3.16
4	0.02	32	3.14
5	5.01	33	1.54
6	0	34	2.57
7	1.86	35	2.89
8	1.89	36	4.26
9	3.61	37	2.28
10	3.57	38	2.58
11	2.53	39	2.1
12	3.76	40	0.45
13	2.56	41	0.45
14	2.78	42	2.1
15	2.33	43	0.01
16	1.58	44	4.14
17	1.72	45	—
18	2.96	46	0.15
19	0.06 (PINP OFF) 0.34 to 0.51 (PINP ON)	47	0
20	4.95	48	0.64
21	0	49	1.59
22	2.72	50	0
23	1.94	51	5
24	4.95	52	1.59
25	2.74	53	0.65
26	0	54	4.14
27	2.33	55	—
28	2.33	56	2.27

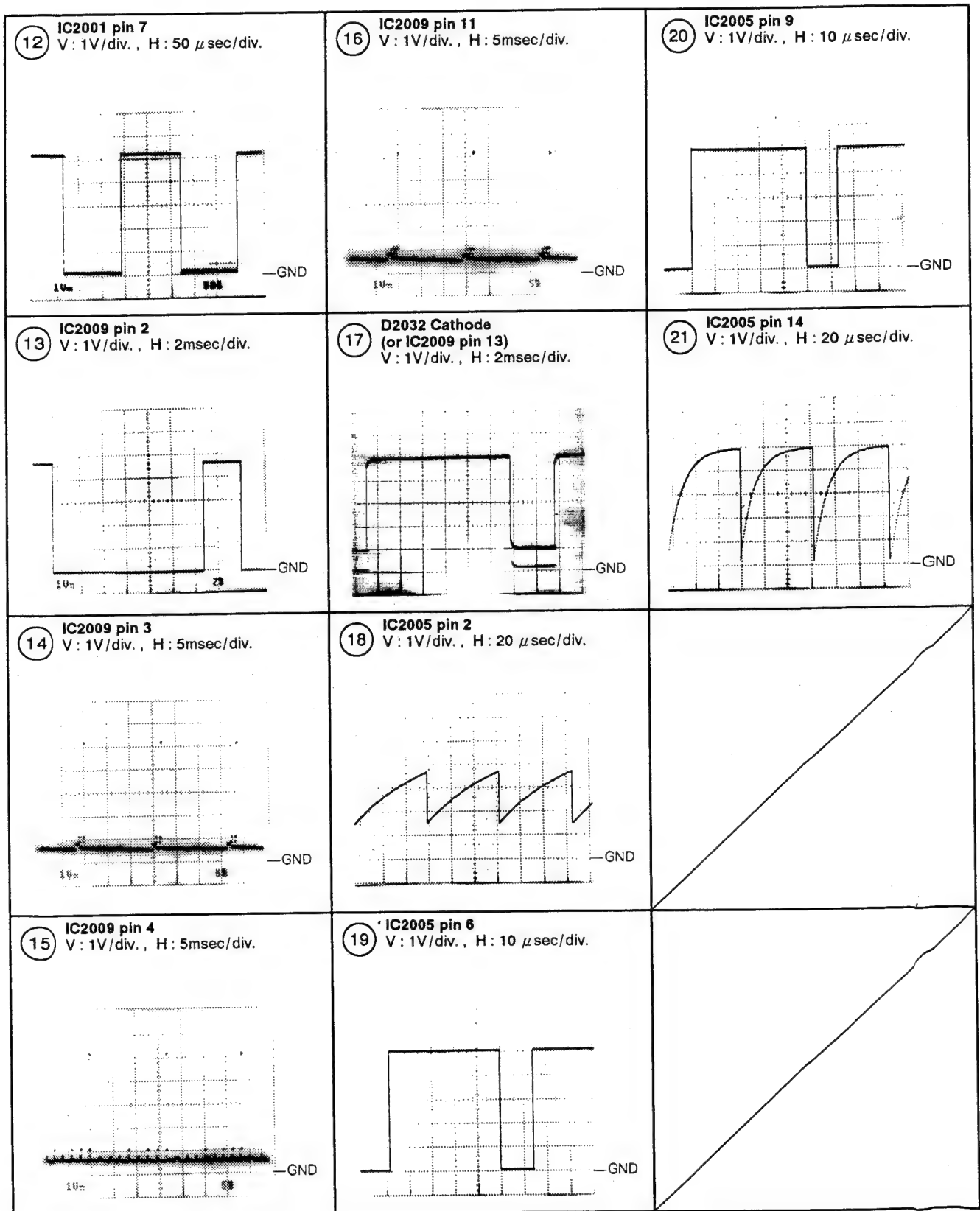
IC3002 (HD49420FS)

No.	Voltage (V)	No.	Voltage (V)
1	0	41	—
2	1.09	42	—
3	5.02	43	—
4	1.47	44	—
5	3.25	45	—
6	2.26	46	—
7	4.27	47	—
8	2.52	48	4.99
9	2.51	49	—
10	2.54	50	—
11	1.77	51	—
12	0	52	—
13	2.52	53	—
14	2.54	54	—
15	5.02	55	—
16	2.37	56	—
17	2.41	57	—
18	5.02	58	—
19	3.57	59	—
20	3.57	60	—
21	2.45	61	—
22	4.37	62	—
23	5	63	—
24	4.73	64	—
25	2.45	65	—
26	3.55	66	—
27	3.54	67	—
28	0	68	—
29	2.2	69	—
30	0	70	—
31	2.29	71	4.1
32	5	72	0.15
33	0.06	73	—
34	0.06 (PINP OFF) 0.34 to 0.51 (PINP ON)	74	4.11
35	—	75	2.58
36	—	76	0.02
37	—	77	2.12
38	—	78	2.12
39	—	79	0
40	—	80	1.66

## S FULL CINEMA MUTE ASSY

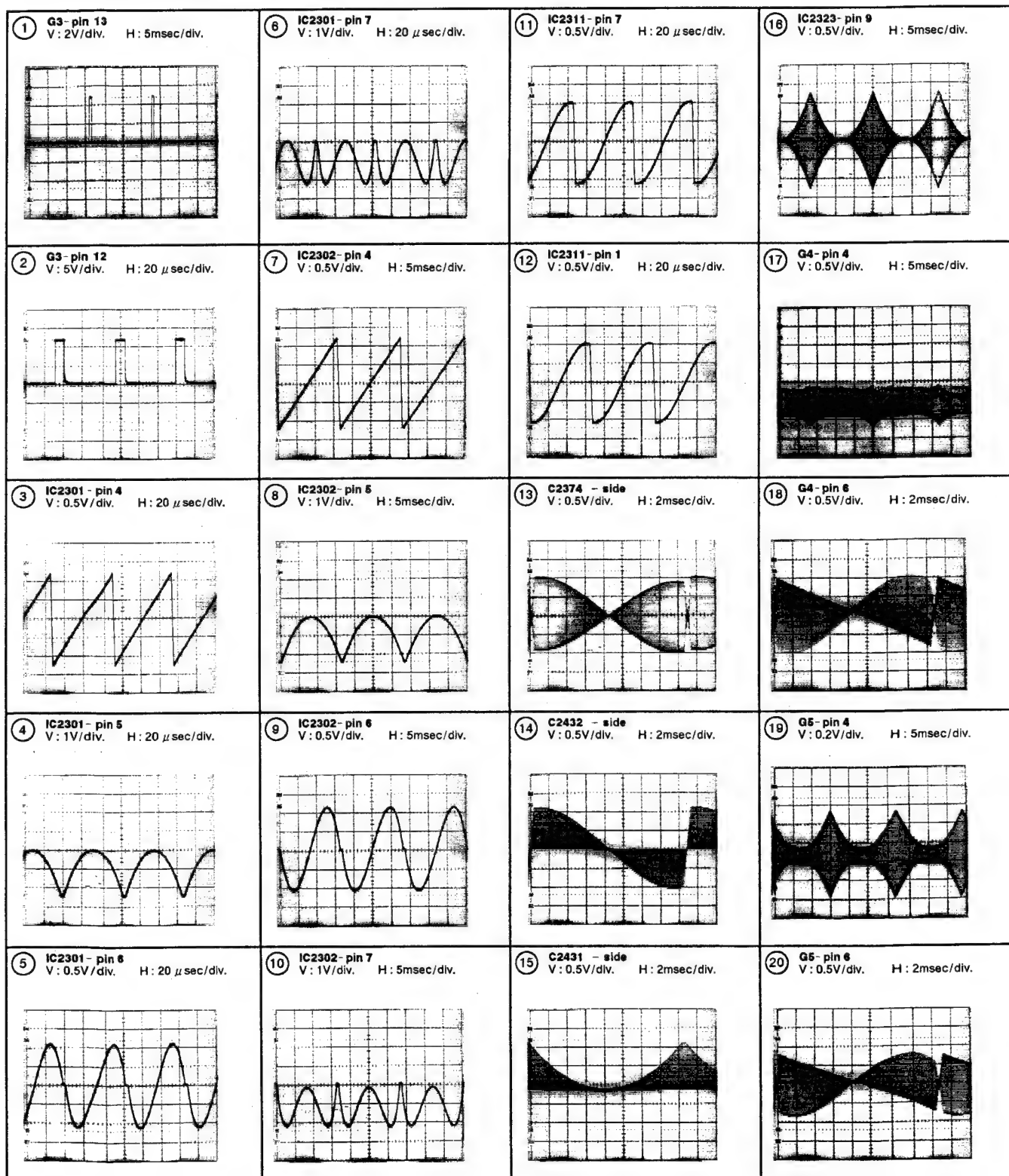
- Input signal : Color bar
- Picture quality : Standard
- Range : DC range (Unless otherwise noted)

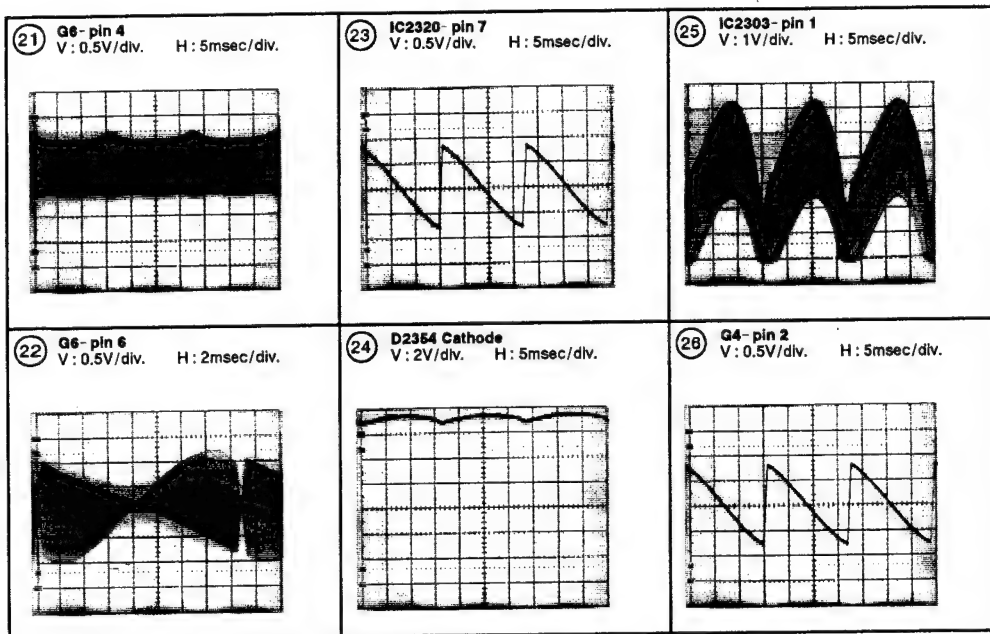




## U CONVERGENCE ASSY

- Input signal : Color bar
- Picture quality : Standard
- Range : DC range (Unless otherwise noted)





IC2301 (PA0053B)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0.4	10	0
2	1.4	11	0.5
3	5	12	-0.9
4	0	13	0.3
5	-0.8	14	1.2
6	0	15	0
7	-1	16	-1.7
8	0	17	1.2
9	-4.9	18	-1.5

IC2302 (PA0053B)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0.1	10	0
2	1.2	11	0.4
3	5	12	-0.9
4	0	13	0.3
5	-0.8	14	1.2
6	0	15	0
7	-1	16	-0.6
8	0	17	1.2
9	-4.9	18	-1.6

IC2317 (STK392-110)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	10	24
2	0	11	0.2
3	-23.2	12	-24.4
4	-24.3	13	0
5	23.8	14	0
6	-0.6	15	-0.1
7	-0.6	16	-0.1
8	-24.4	17	-24.4
9	-0.3	18	0.2

IC2307 (PM0002B)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	12	0.2	23	0	34	—
2	-0.8	13	5.1	24	0	35	0
3	0	14	-2.1	25	0	36	0
4	-1	15	0	26	0	37	0
5	0	16	-0.8	27	0	38	0
6	-0.4	17	0	28	0	39	0
7	0	18	-0.8	29	0	40	0
8	5	19	0	30	0	41	-0.1
9	-4.9	20	-0.6	31	—	42	0
10	0.2	21	5	32	—		
11	5.1	22	-0.4	33	—		

IC2308 (PM0002B)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	12	0.2	23	-0.4	34	—
2	-0.8	13	5.1	24	0.1	35	0
3	0	14	-2.2	25	-0.3	36	0
4	-1	15	0	26	0	37	0
5	0	16	-0.8	27	0	38	0
6	—	17	0	28	0	39	0
7	-4.9	18	-0.8	29	0	40	0
8	5	19	0	30	0	41	0.5
9	-4.9	20	-0.6	31	—	42	0
10	0.2	21	5	32	—		
11	5.1	22	-0.4	33	—		

# PRO - 119, PRO - 99

IC2309 (PM0002B)

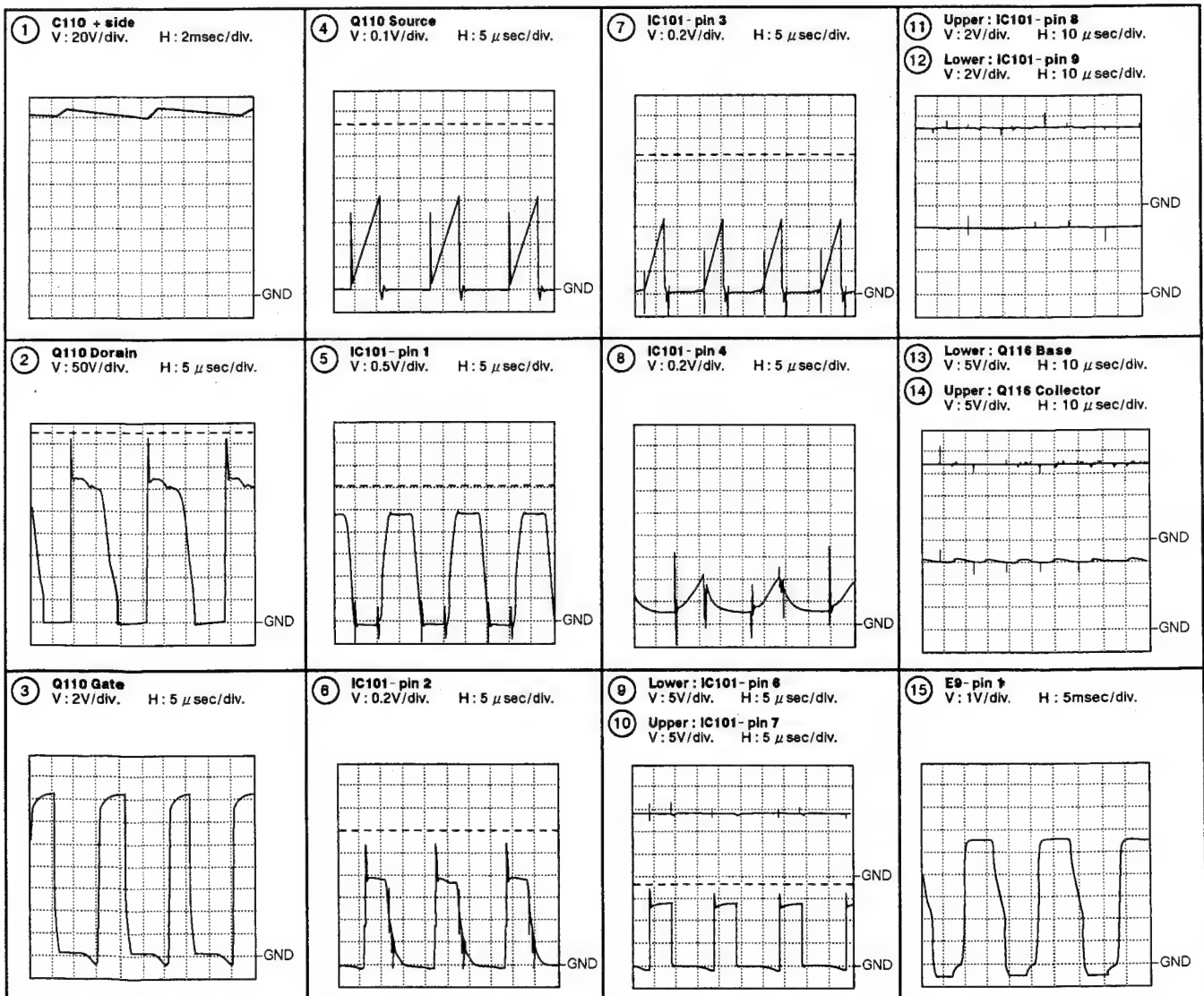
Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	12	0.2	23	0	34	—
2	-0.8	13	5.1	24	0	35	0
3	0	14	-2.1	25	-0.2	36	0
4	-1	15	0	26	0	37	0
5	0	16	-0.8	27	0	38	0
6	-0.2	17	0	28	0	39	0
7	5	18	-0.8	29	-0.2	40	0
8	5	19	0	30	0	41	-0.6
9	-4.9	20	-0.6	31	—	42	0
10	0.2	21	5	32	—		
11	5.1	22	0	33	—		

IC2319 (STK392-110)

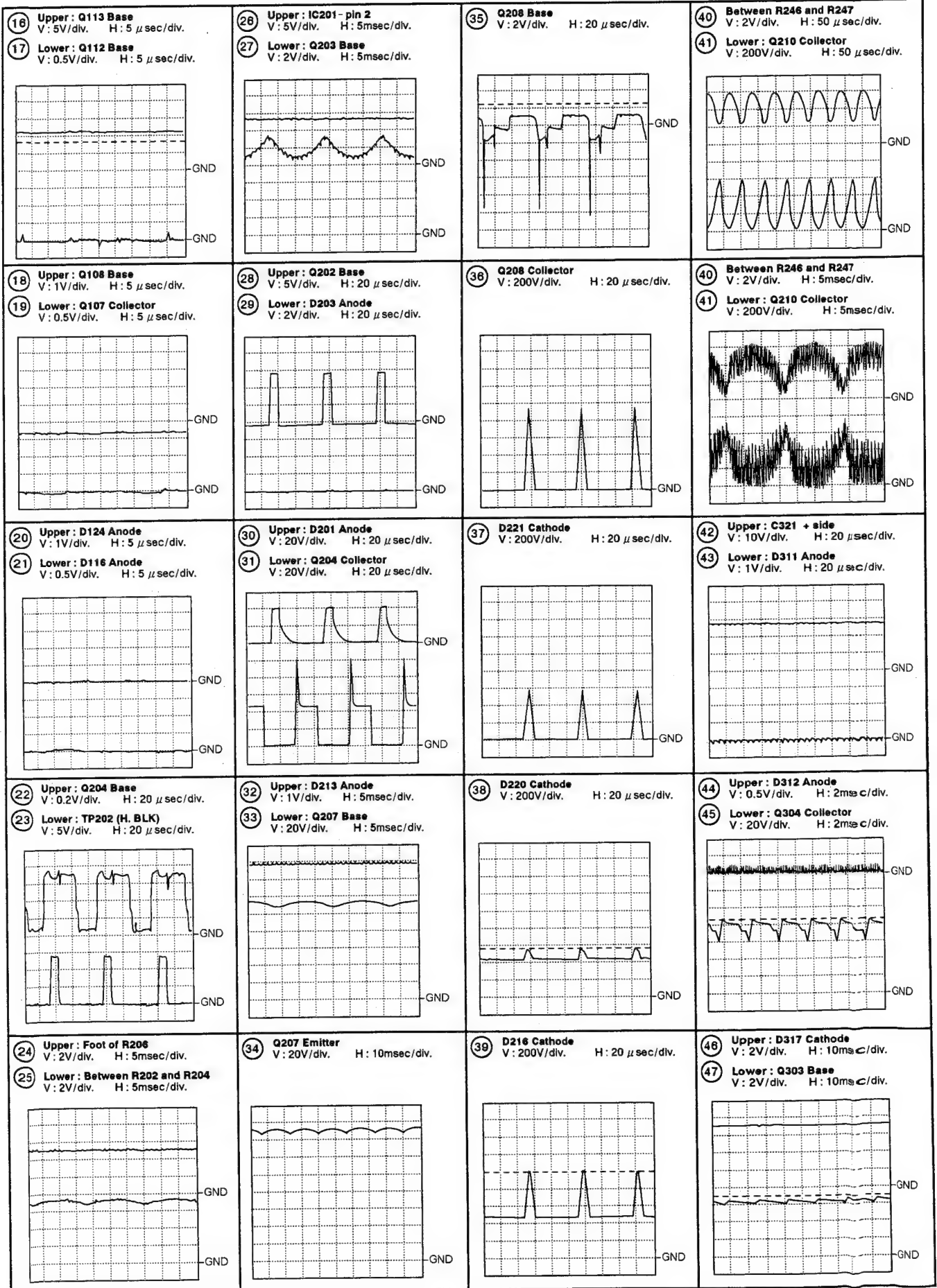
Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	10	23.8
2	0	11	0.9
3	-23.2	12	-24.6
4	-24.3	13	0.5
5	23.8	14	0.5
6	0	15	0
7	0	16	0
8	-24.6	17	-24.6
9	0.1	18	0.1

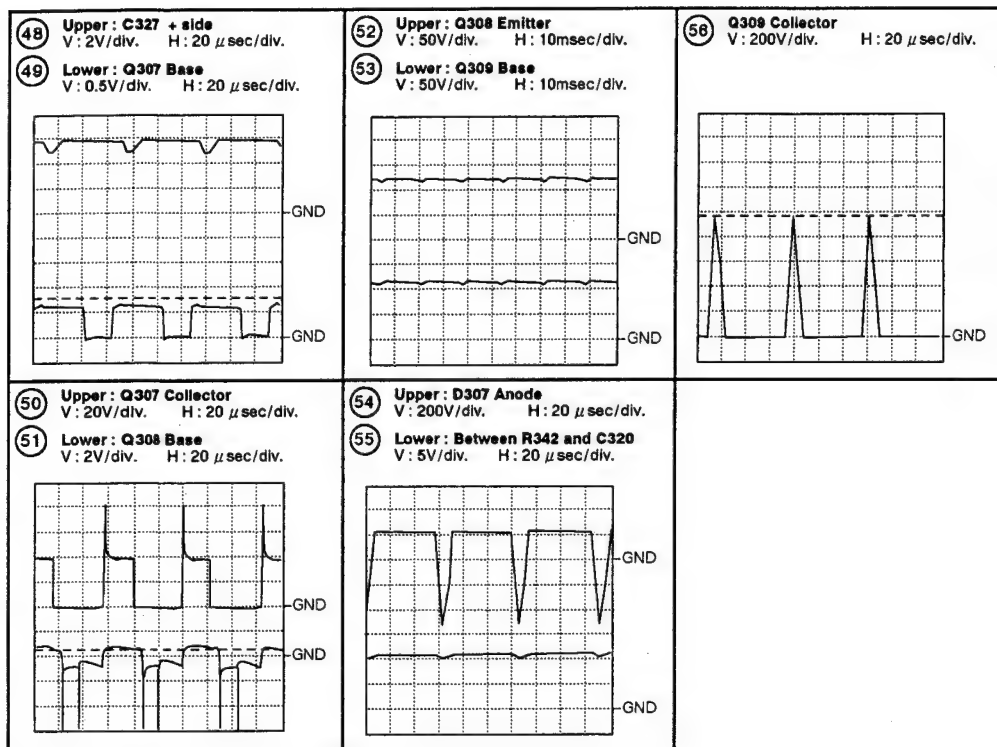
## Z POWER SUPPLY ASSY

- Input signal : Color bar
- Picture quality : Standard
- Range : DC range (Unless otherwise noted)






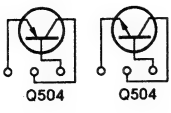
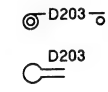
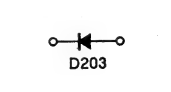
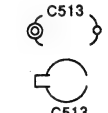
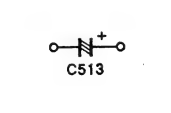









## 4. PCB CONNECTION DIAGRAMS

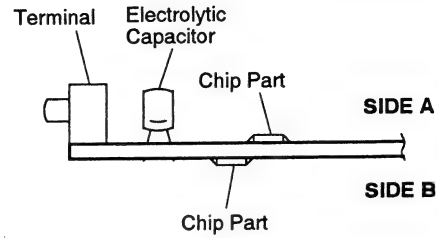
### NOTE FOR PCB DIAGRAMS:

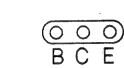
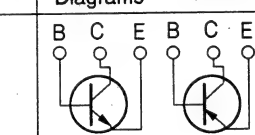
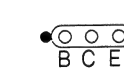
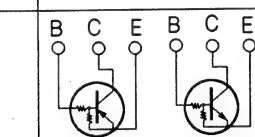

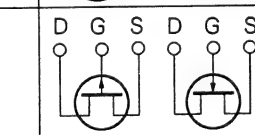
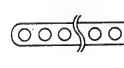
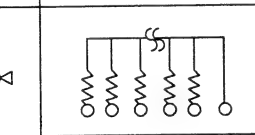
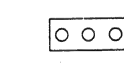
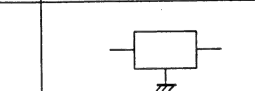
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Diode
		Capacitor (Polarized)

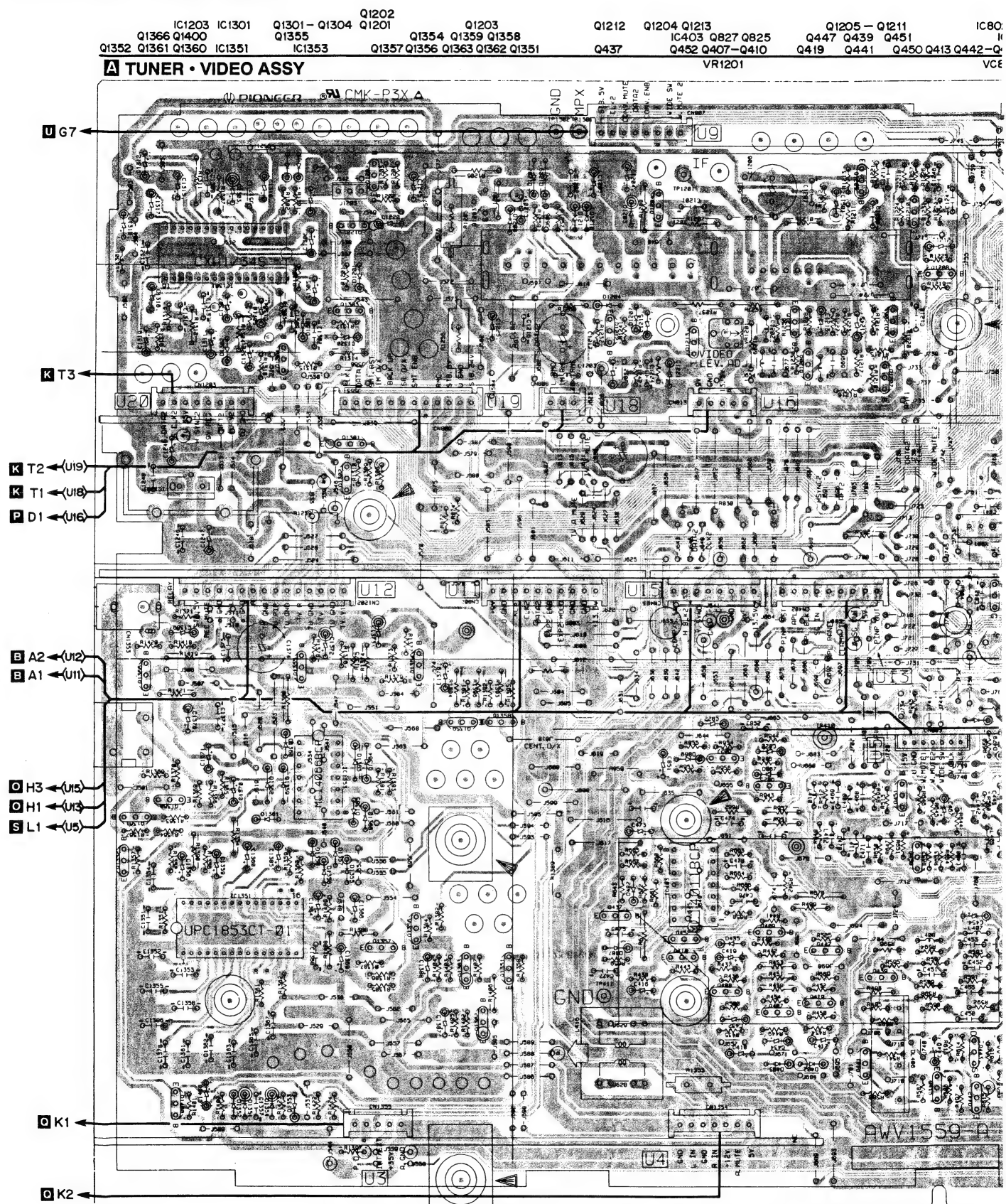
3. The transistor terminal marked with E or  shows the emitter.
4. The diode terminal marked with  or  shows cathode side.
5. The capacitor terminal marked with  or  shows negative terminal.
6. The parts mounted on each PCB include all necessary parts for several destinations.  
For further information for respective destinations, be sure to check with the schematic diagram.

7. PCB diagrams which are indicated as SIDE A and SIDE B are double sided as follows;



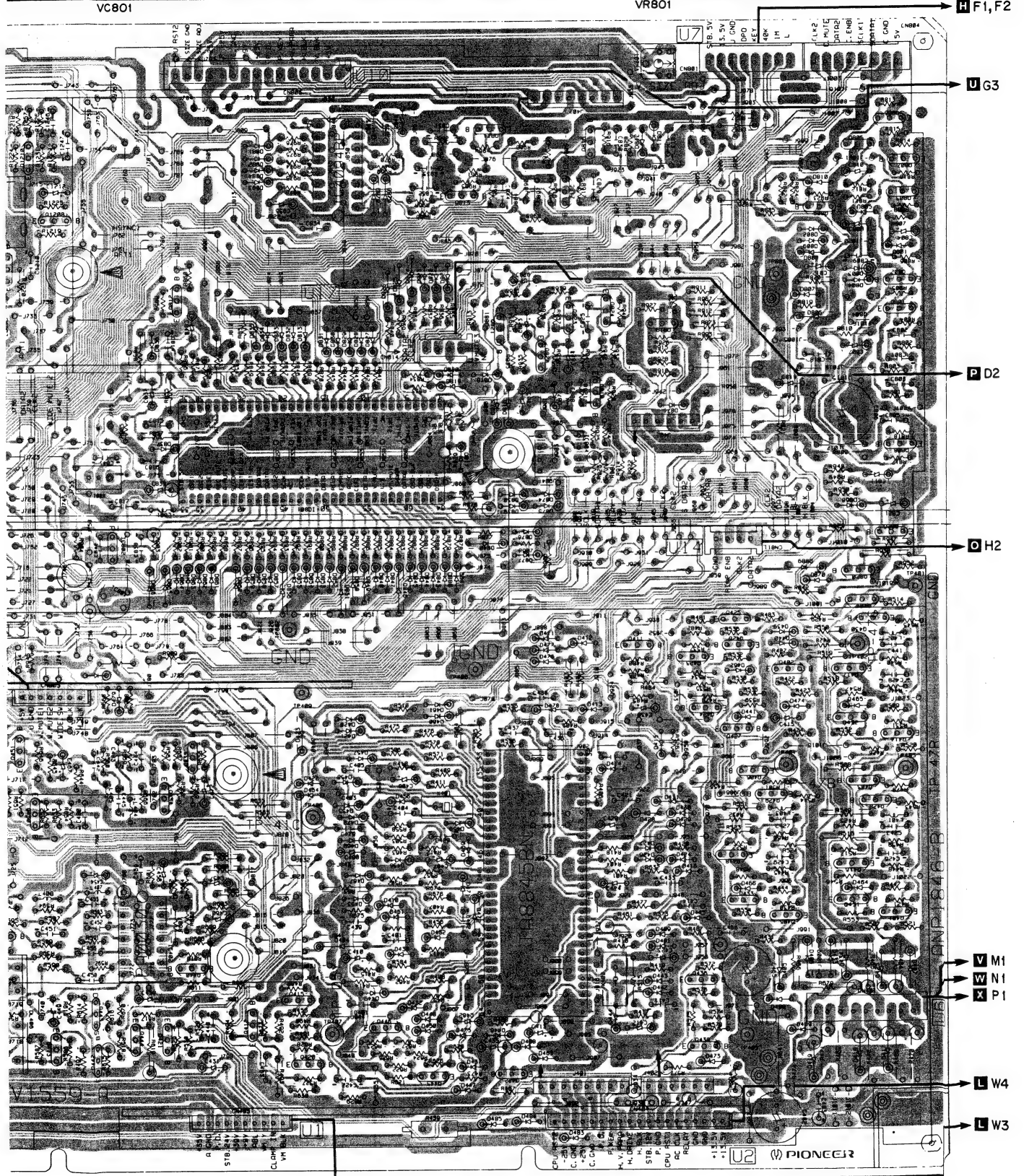
Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

# 4.1 TUNER • VIDEO ASSY

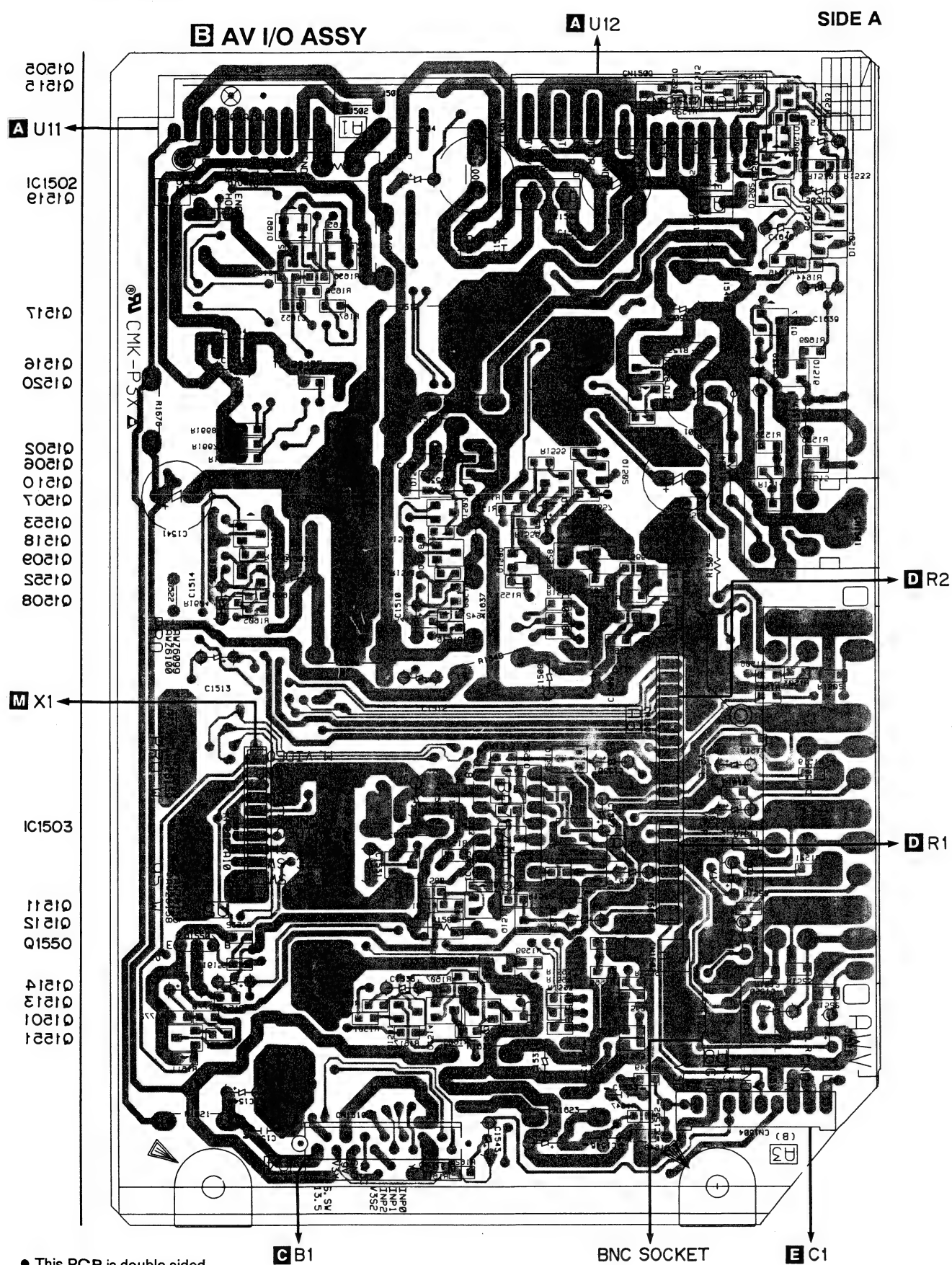




:11 IC802 Q812 IC801 IC803 Q814 Q817 Q816 Q801-Q809 Q826  
 451 IC402 Q434 Q435 Q813 Q821-Q824 Q818 Q819 Q423-Q427 Q402 Q417 Q432 Q404 Q820  
 Q450 Q413 Q442-Q444 Q421 Q440 Q412 Q420 Q446 Q445 Q422 IC401 Q436 Q438 Q433 Q429 Q405 Q431 Q416 Q401  
 VC801 VR801



## 4.2 AV I/O ASSY







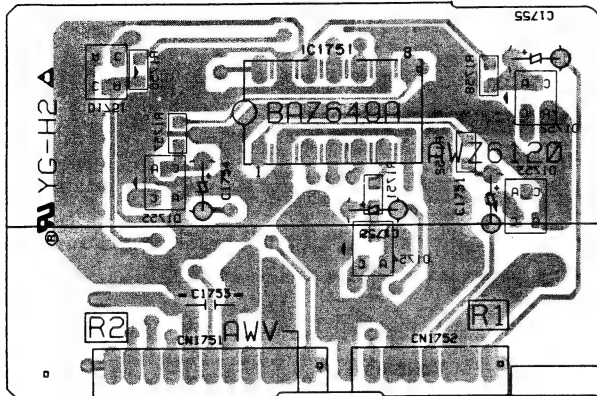




#### 4.4 P IN P SELECTOR AND FRONT INPUT ASSEMBLIES

##### **D** P IN P SELECTOR ASSY

SIDE A

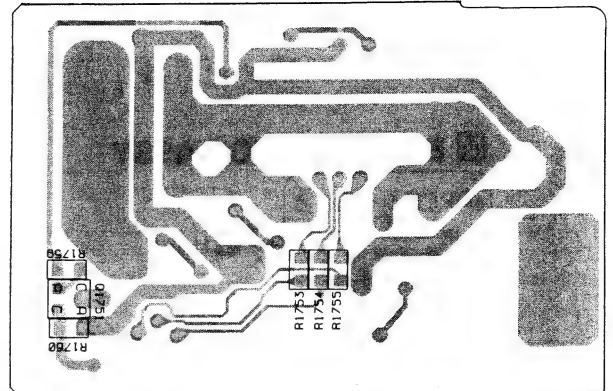


**A** A6

**A** A7

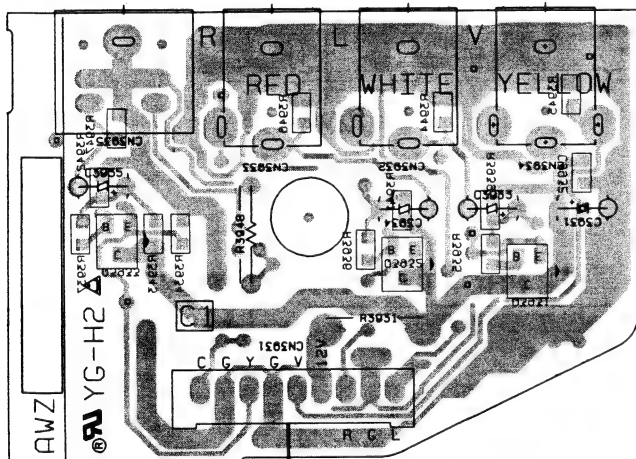
(ANP1851-B)

SIDE B



##### **E** FRONT INPUT ASSY

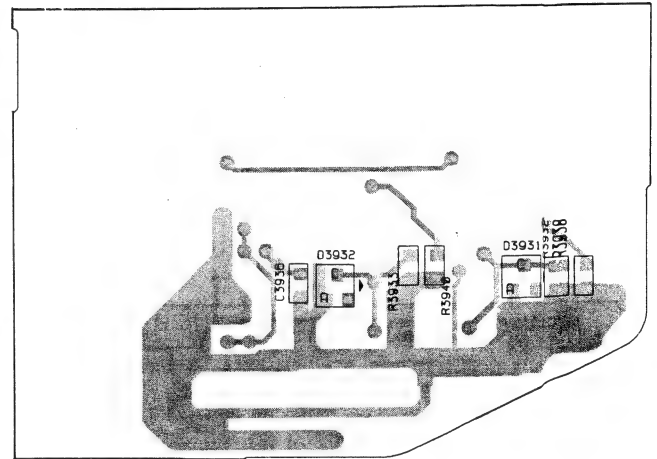
SIDE A



**A** A3

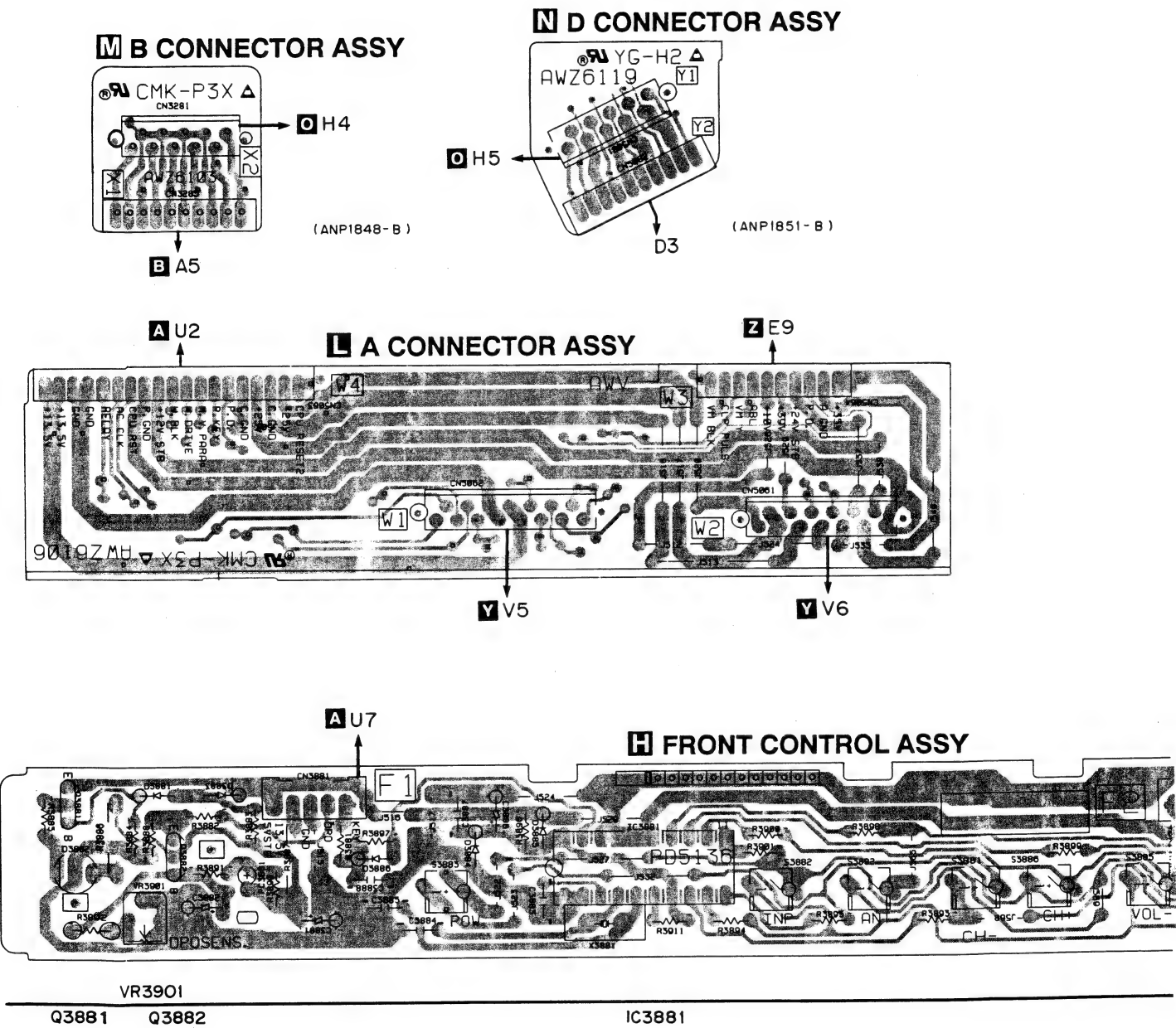
(ANP1851-B)

SIDE B



• This PCB is double sided.

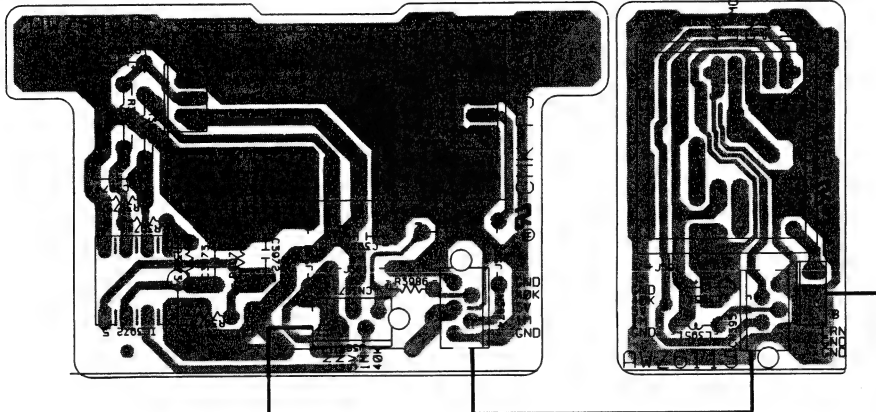
4.5 A, B AND D CONNECTOR, IR RECEIVER, SUB RECEIVER  
AND FRONT CONTROL ASSEMBLIES



• This diagram is viewed from the mounted parts side.

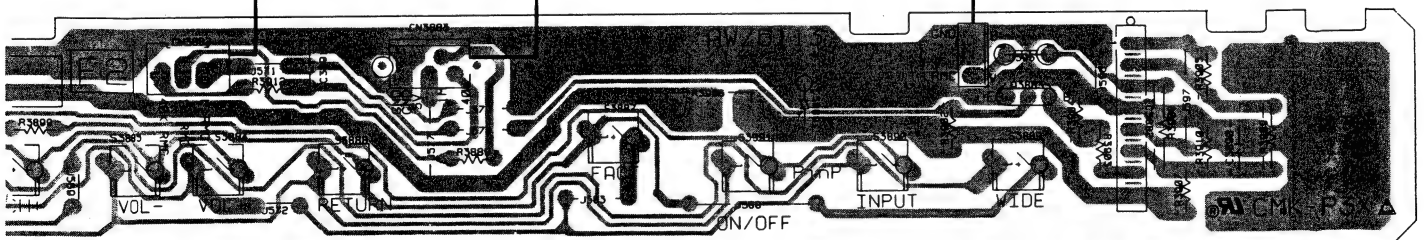
**G SUB RECEIVER ASSY**

**F IR RECEIVER ASSY**



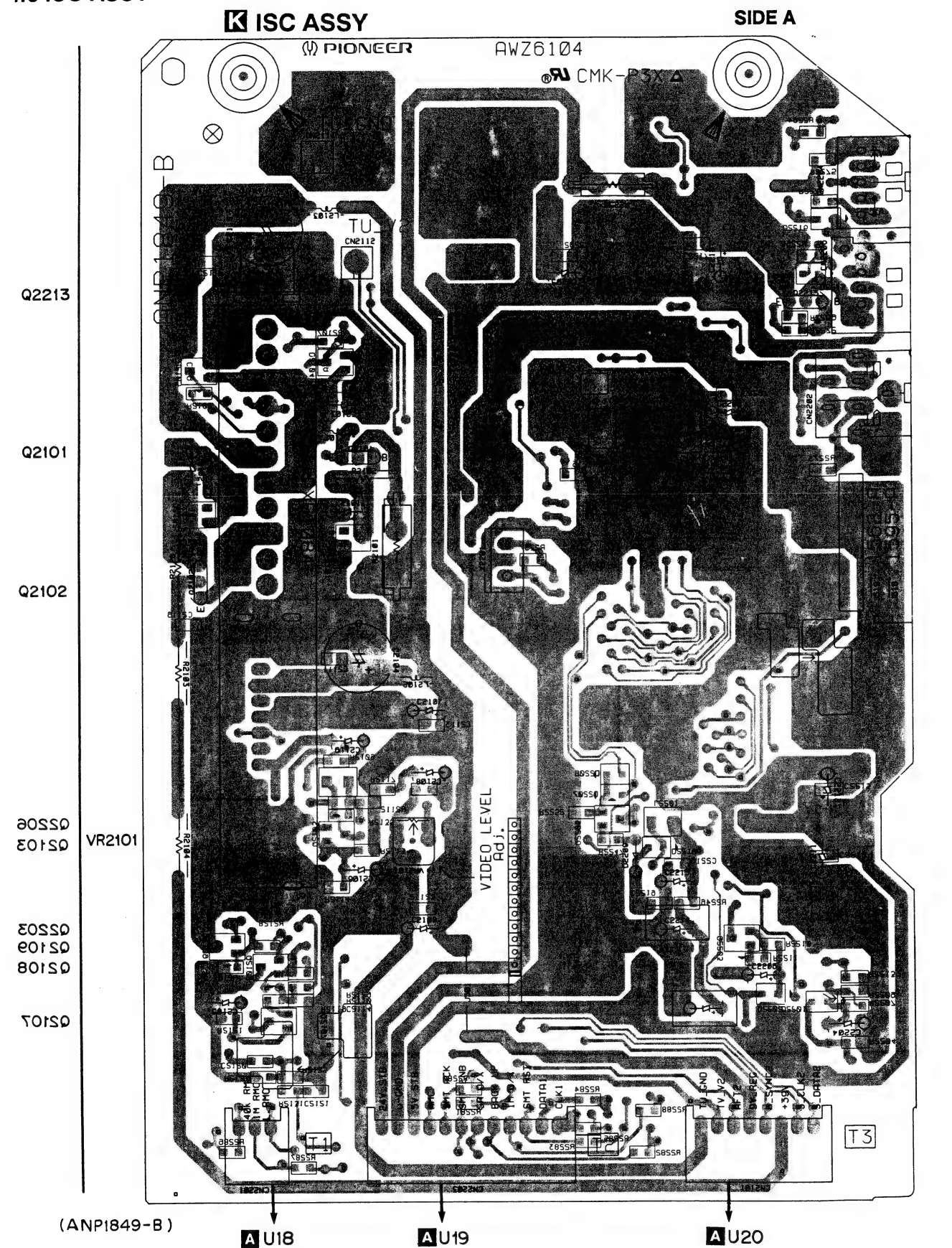
( ANP1850-B )

**A U7**



Q3883 IC3882

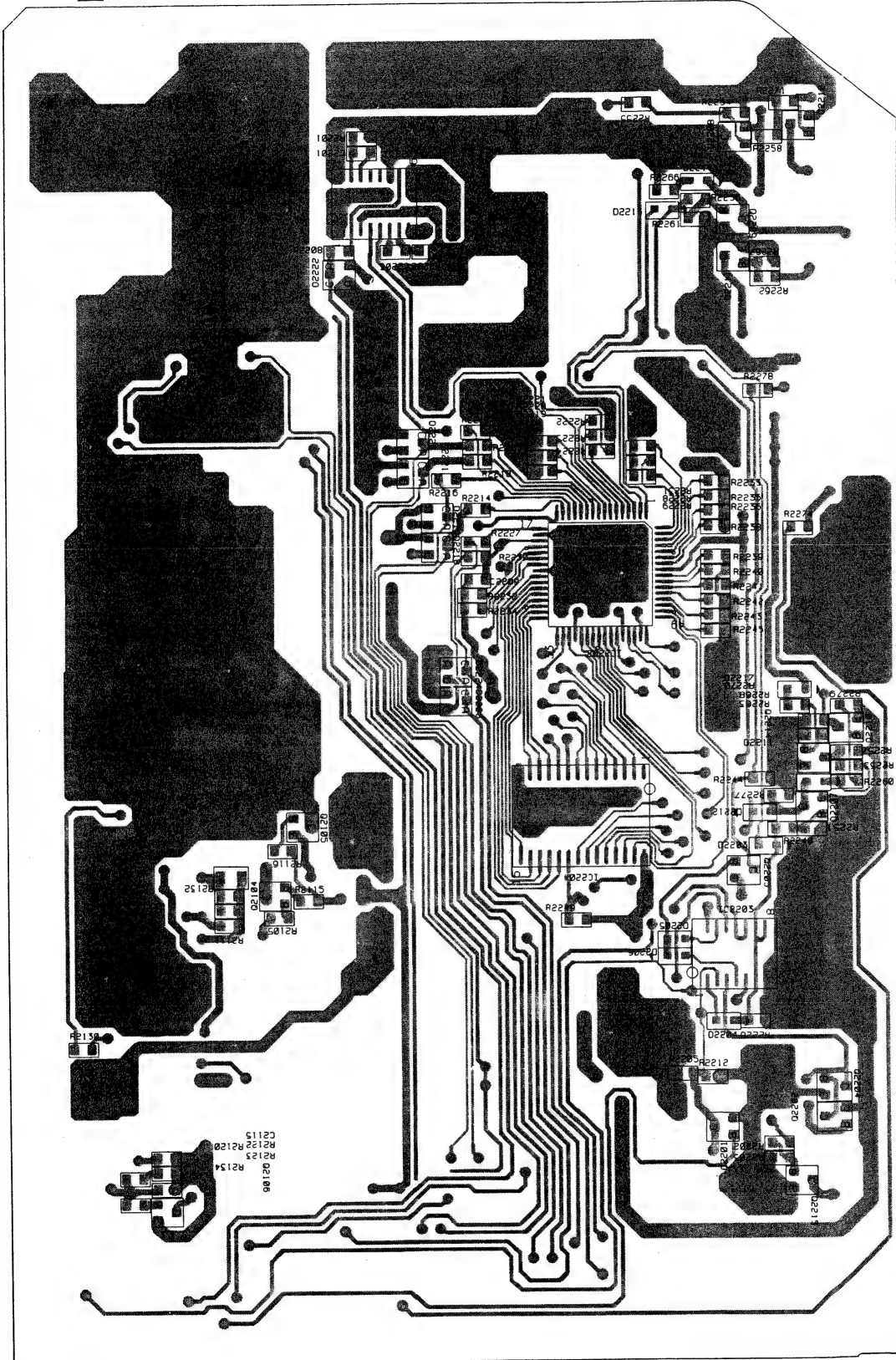
4.6 ISC ASSY



• This PCB is double sided.

**K** ISC ASSY

**SIDE B**



Q2212  
Q2208

IC2201  
Q2209

Q2211

IC2202

Q2210  
Q2214  
IC2204  
Q2207  
Q2105

Q2205

Q2104

IC2203

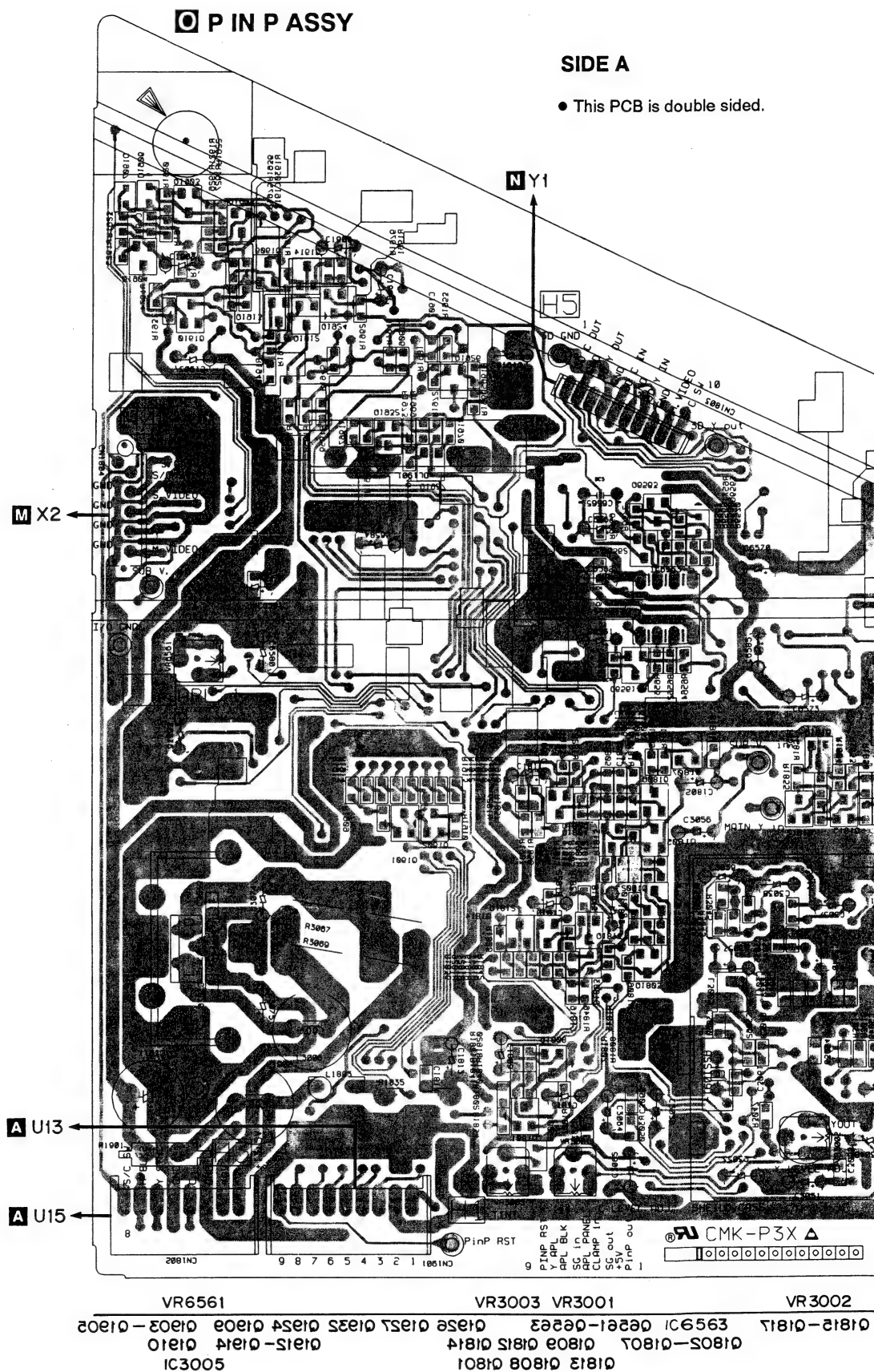
Q2204  
Q2202  
Q2201

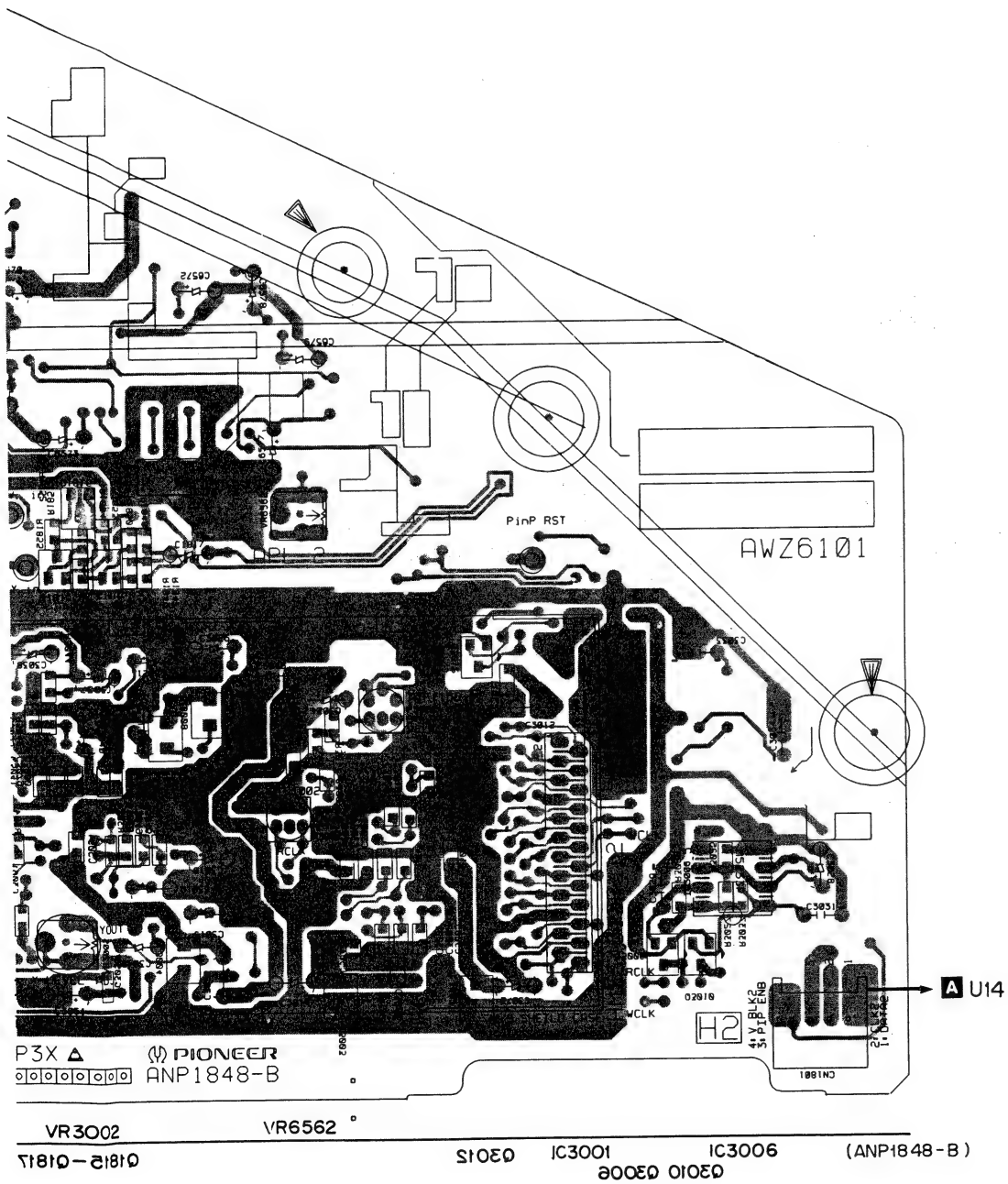
Q2215  
Q2106

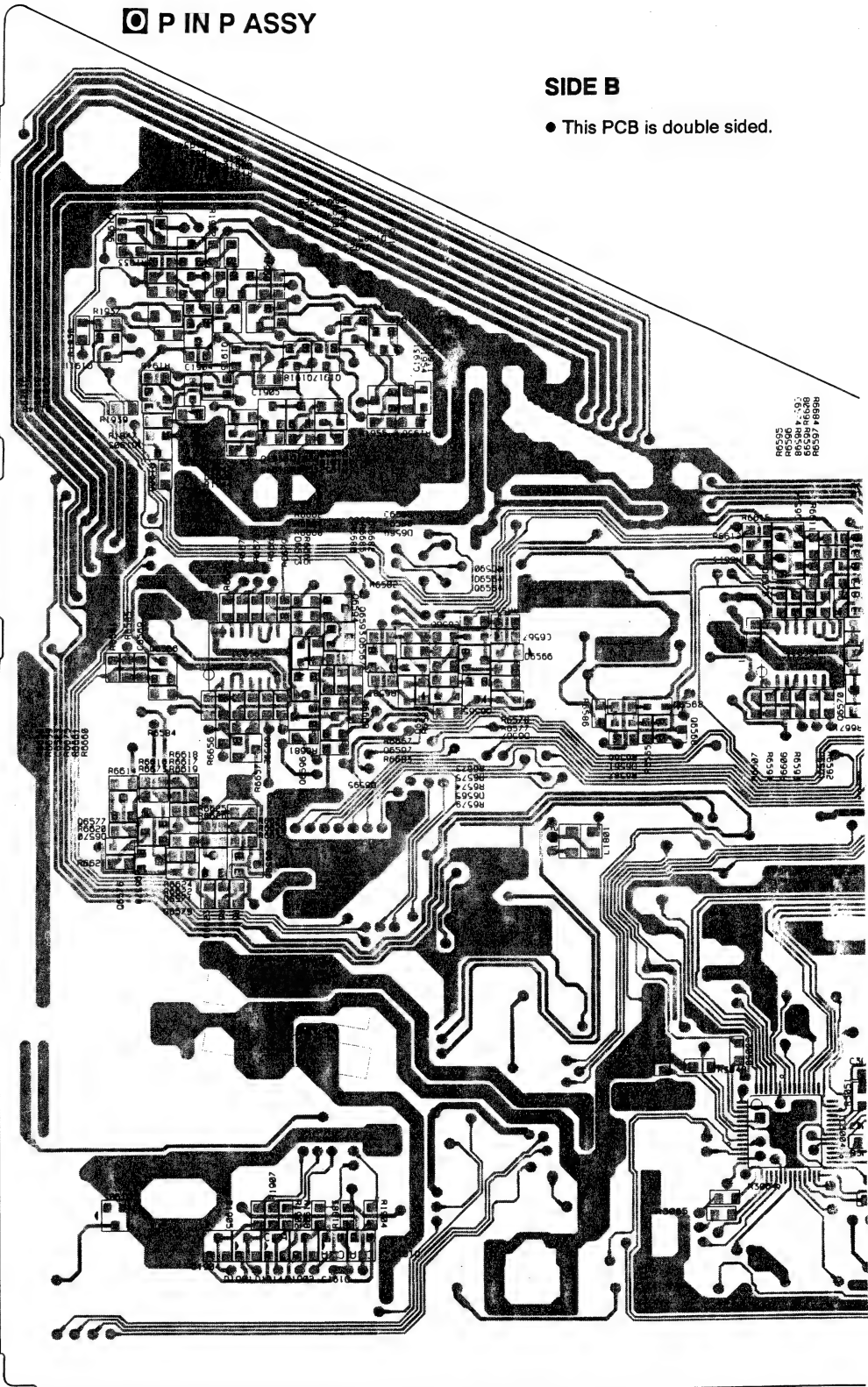
• This PCB is double sided.



#### 4.7 P IN P ASSY

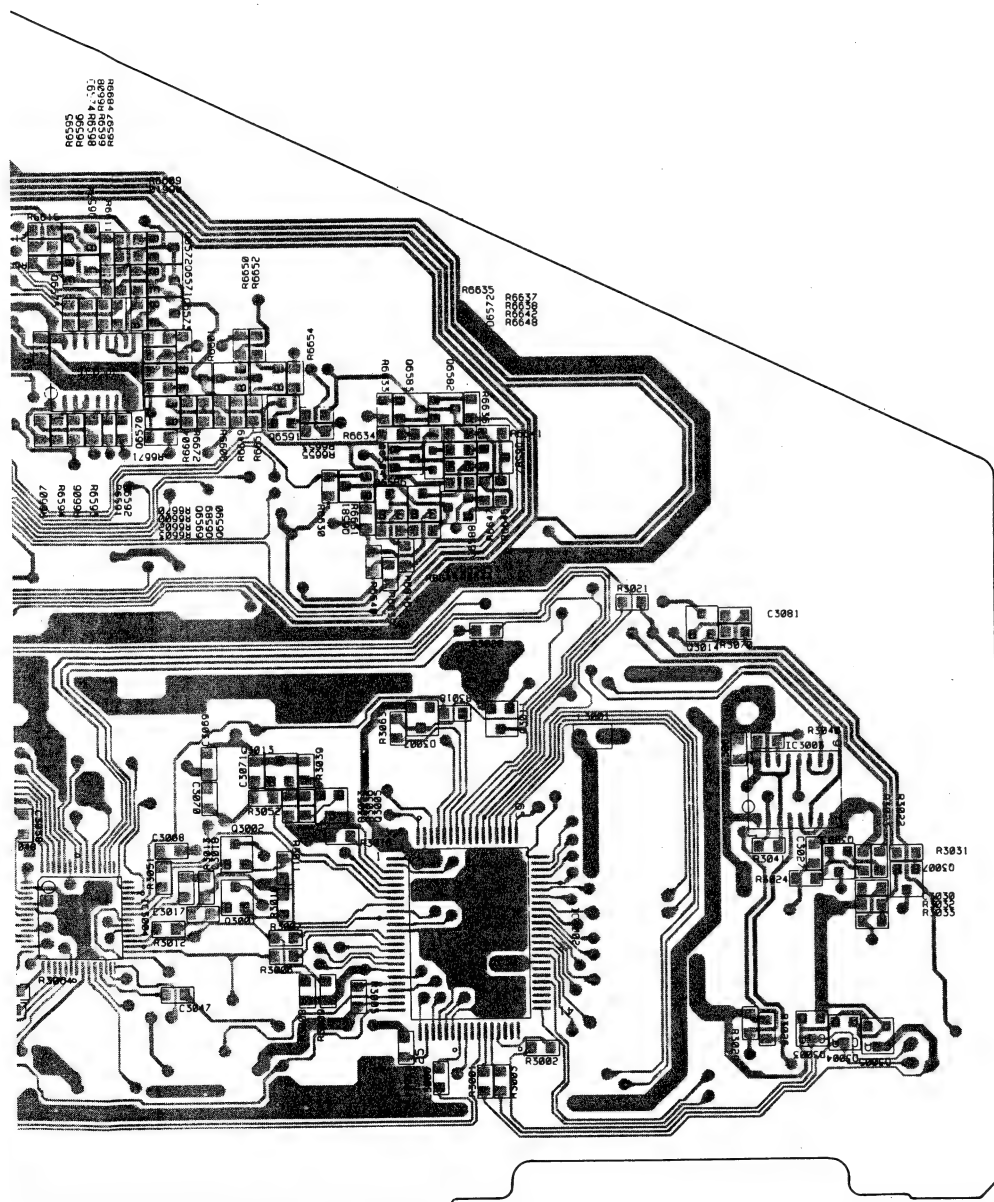






Q1911 Q1906-Q1908 Q1921-Q1923	Q6570-Q6
Q1929 Q1925 Q1915-Q1920	IC6561
Q6566 IC6562 Q1930 Q1928 Q1931 Q6564	IC3004
Q6576-Q6580 Q6592-Q6597 Q6567 Q6565	





Q6570 - Q6575

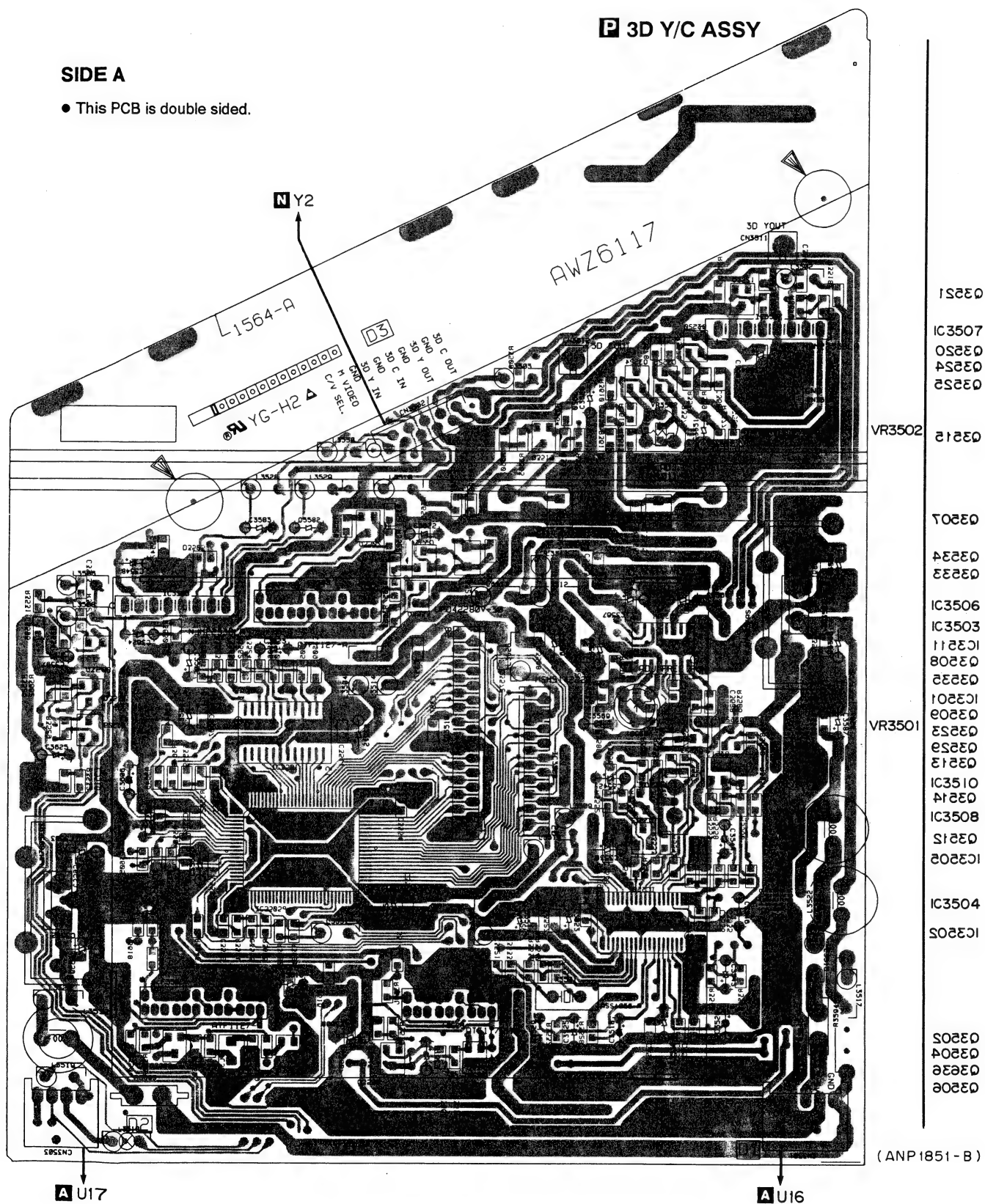
IC6561 Q6569 Q6589-Q6591 Q6581-Q6588  
IC3004 Q3002 Q3013 Q3005 IC3002 Q3011  
Q3001

Q3014 IC3003  
Q3003 Q3007

#### 4.8 3D Y/C ASSY

## SIDE A

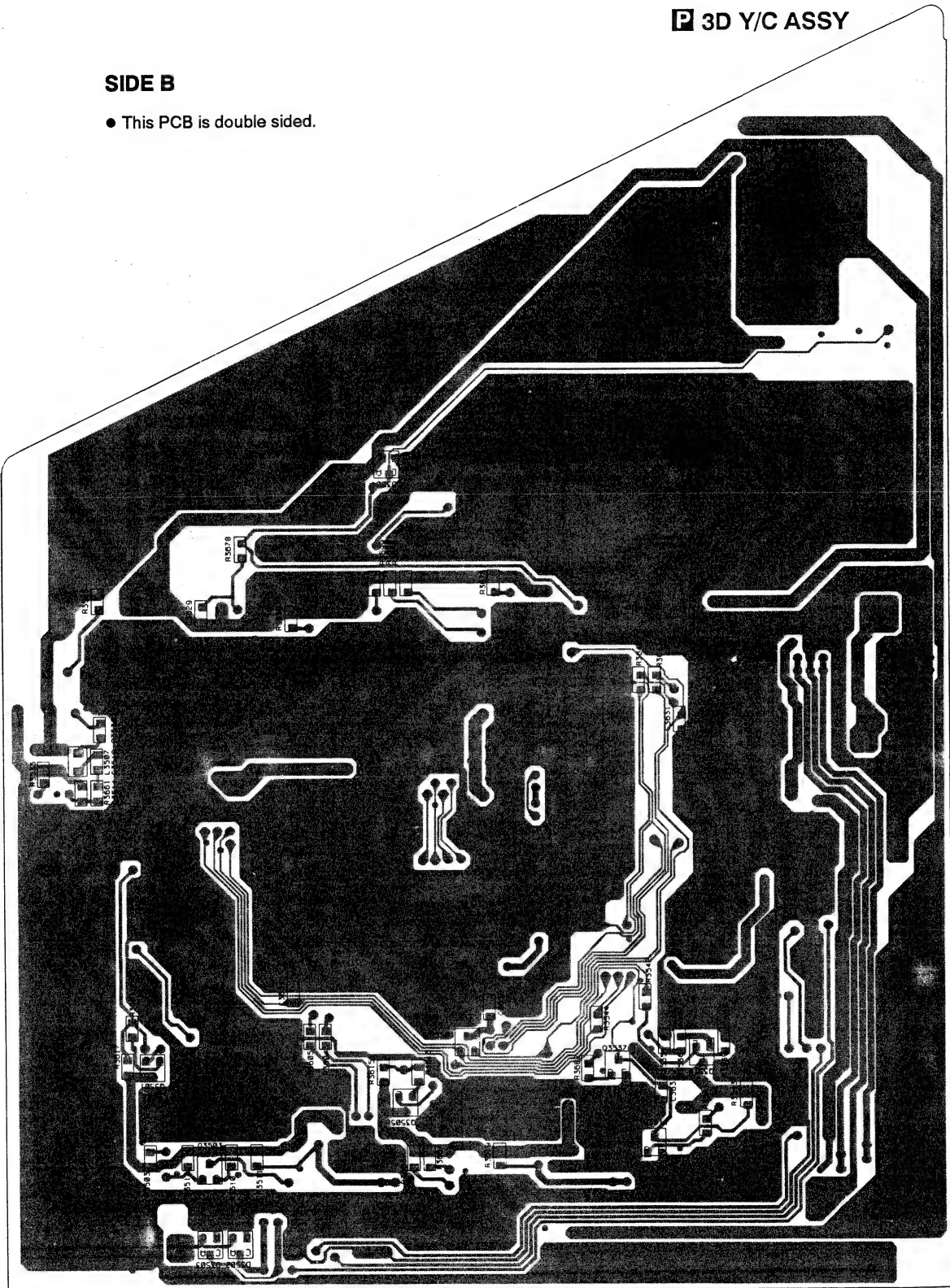
- This PCB is double sided.



**P** 3D Y/C ASSY

**SIDE B**

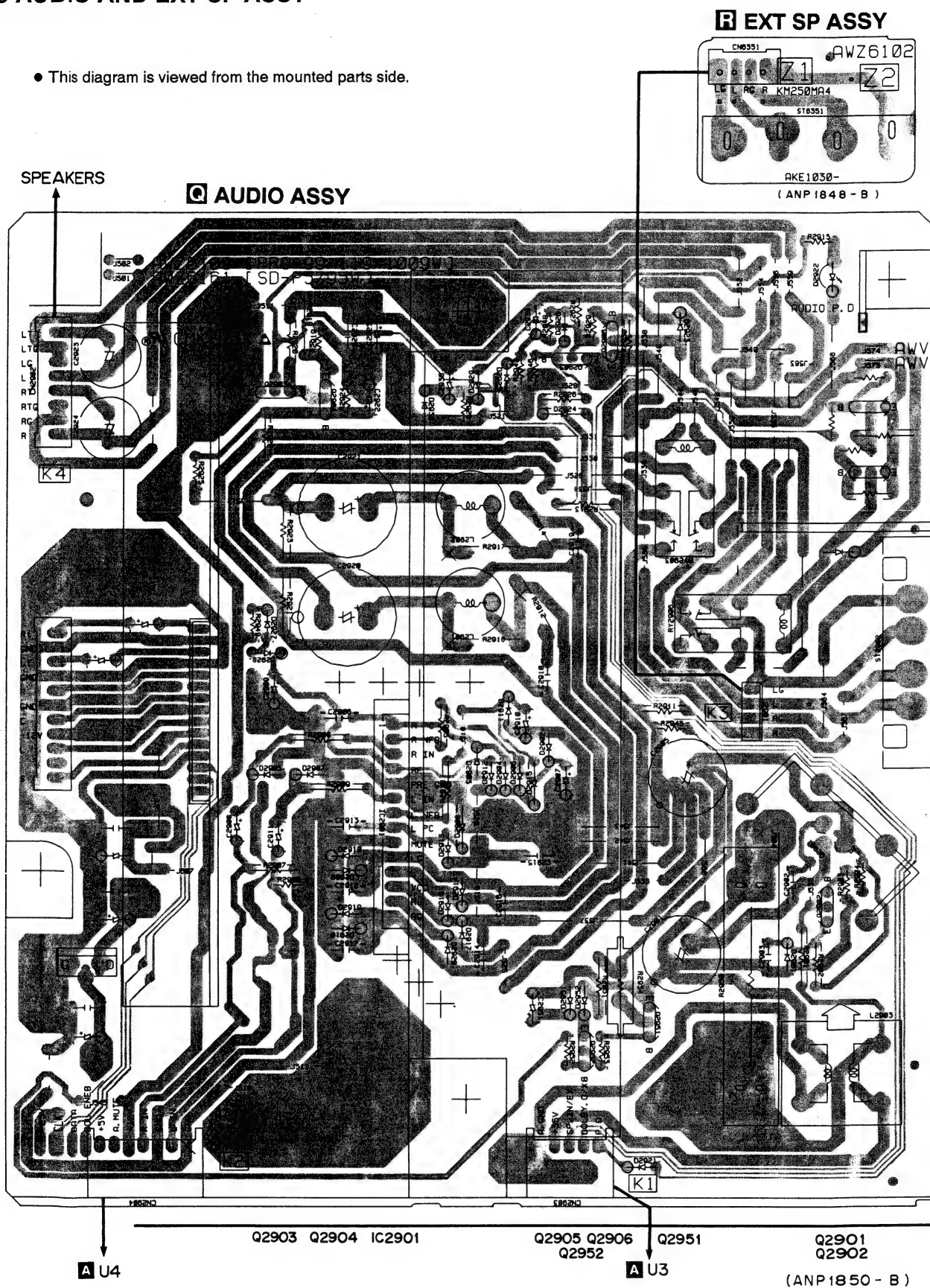
- This PCB is double sided.



Q3510  
Q3501  
  
Q3505  
Q3511  
Q3503

# 4.9 AUDIO AND EXT SP ASSY

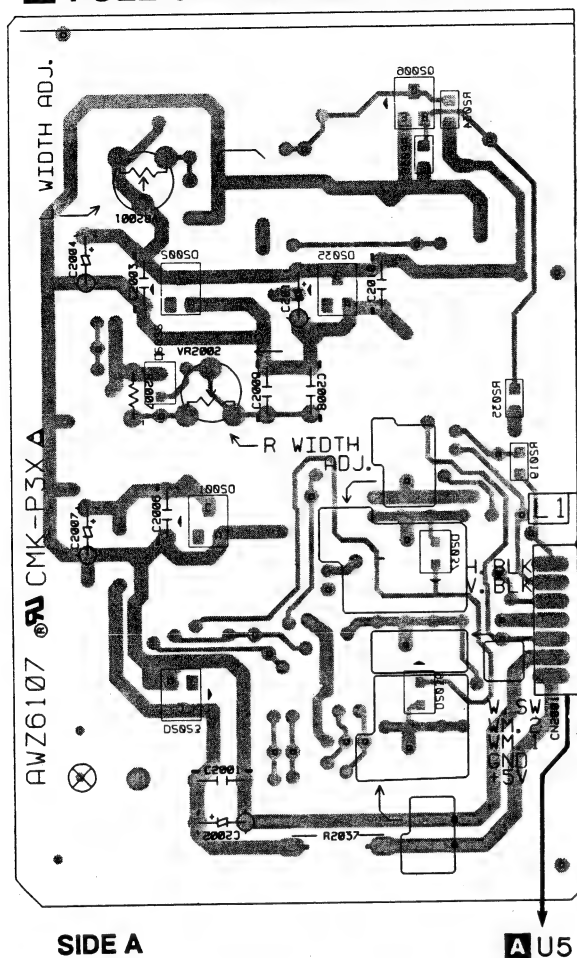
- This diagram is viewed from the mounted parts side.





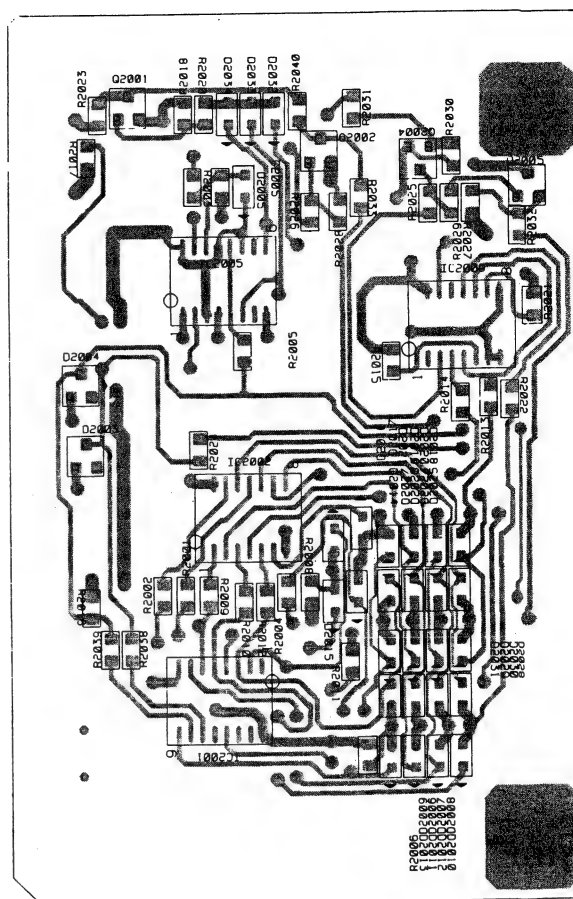
#### 4.10 FULL CINEMA MUTE AND FULL CINEMA CONVER ASSY

**S FULL CINEMA MUTE ASSY**



## SIDE A

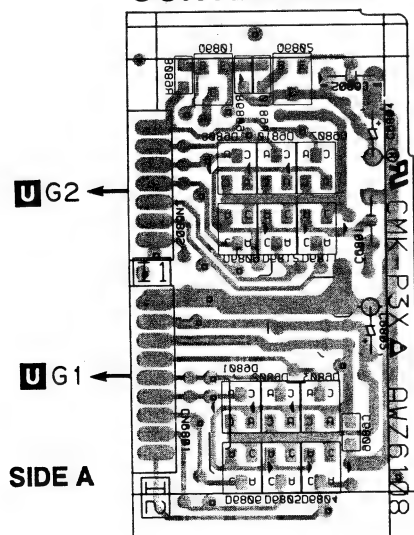
**A** U5

**SIDE B**

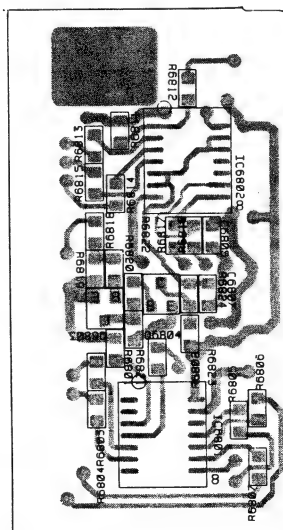
Q2001 IC2005 IC2002 Q2002 Q2004 Q2005

(ANP1849-B)

## T FULL CINEMA CONVER ASSY



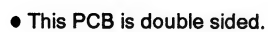
## SIDE A

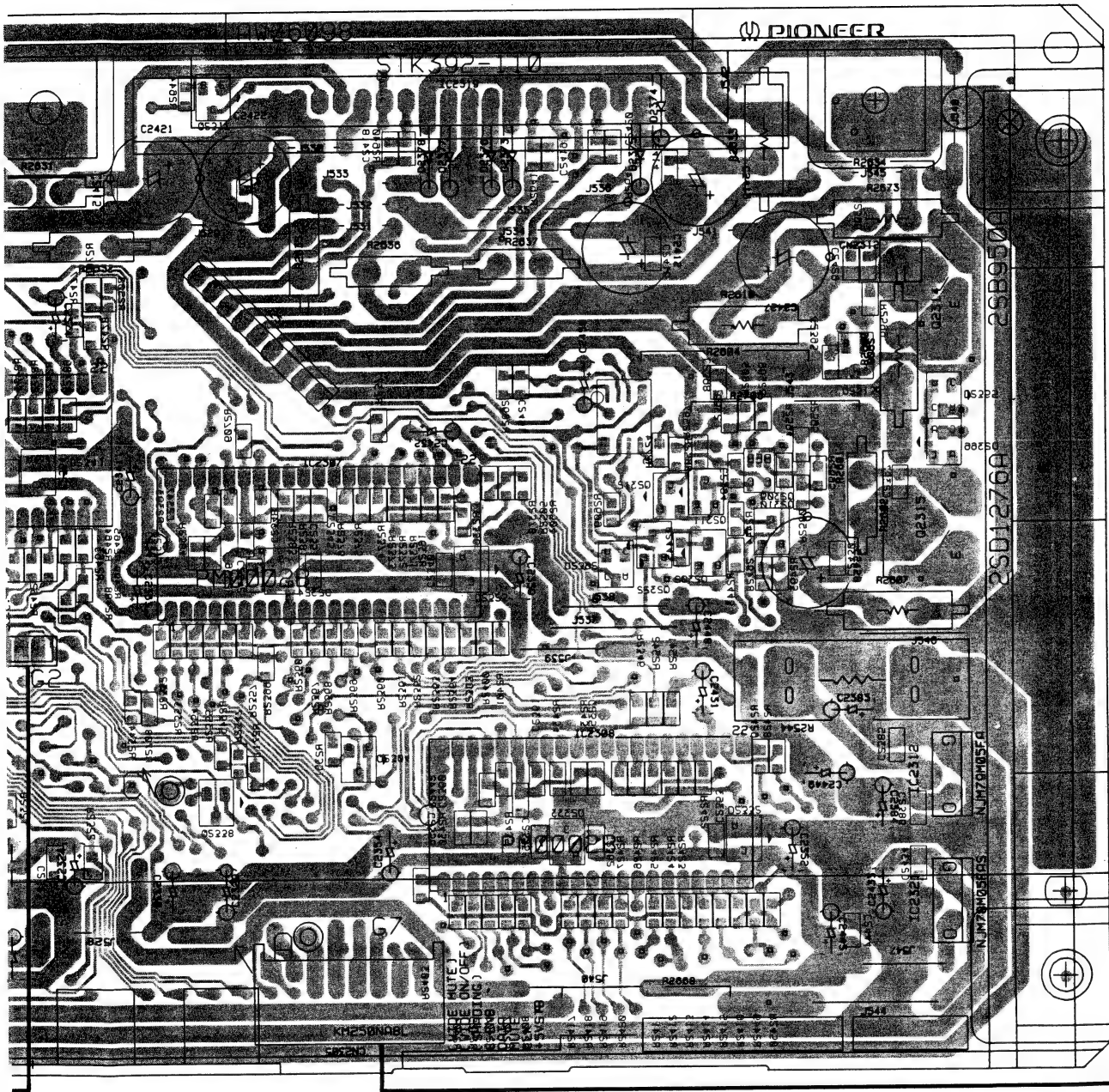


## SIDE B

- This PCB is double sided.

## U CONVERGENCE ASSY





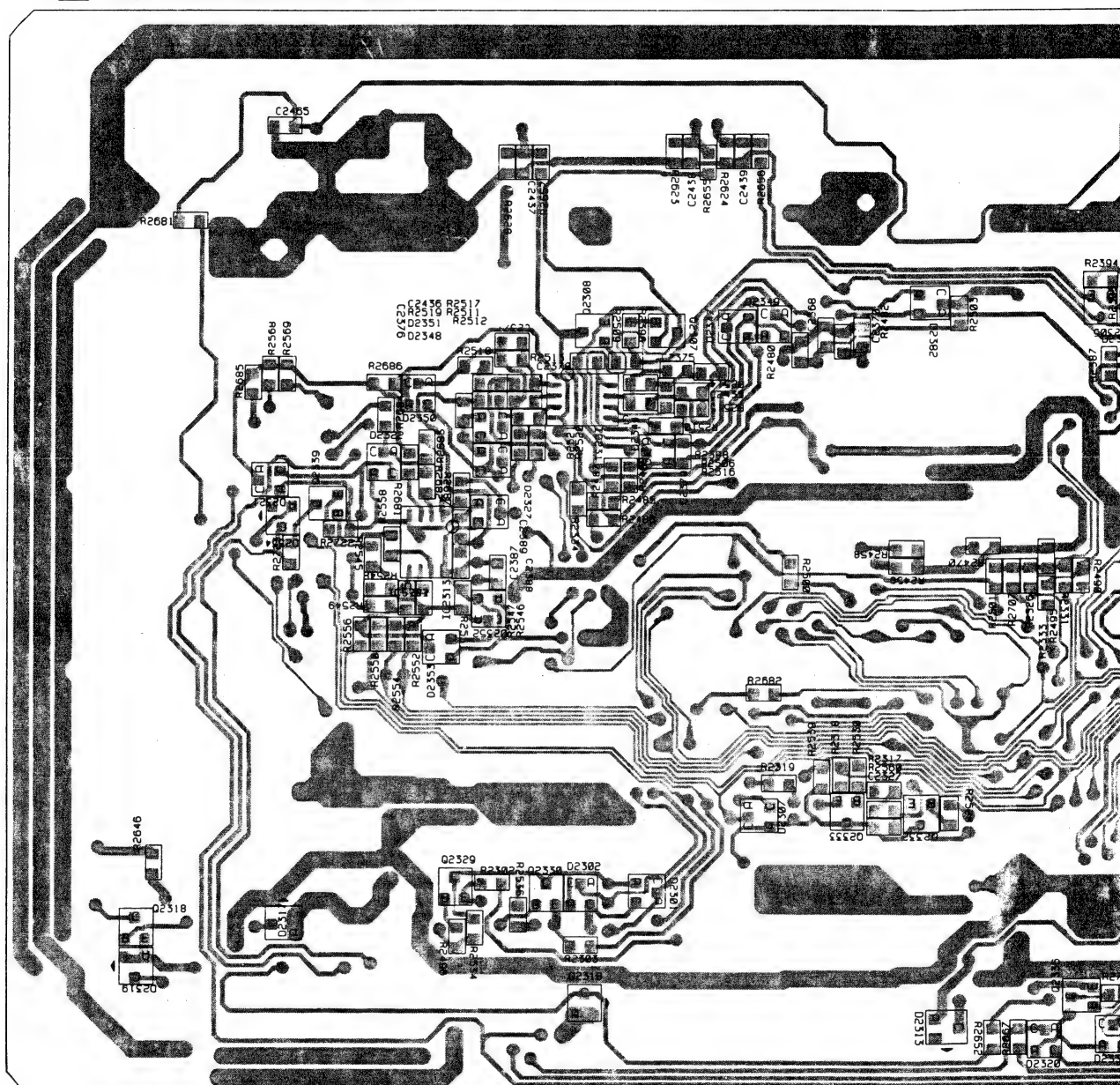
A U9

IC2309 71ESQ 8ESQ IC2307 40ESQ IC2319 55ESQ 1CS351 51ESQ - 60ESQ 51ESQ Q2314 Q2315  
IC2308 55ESQ 50ESQ IC2312 IC2321



## U CONVERGENCE ASSY

## SIDE B



**Q2318**

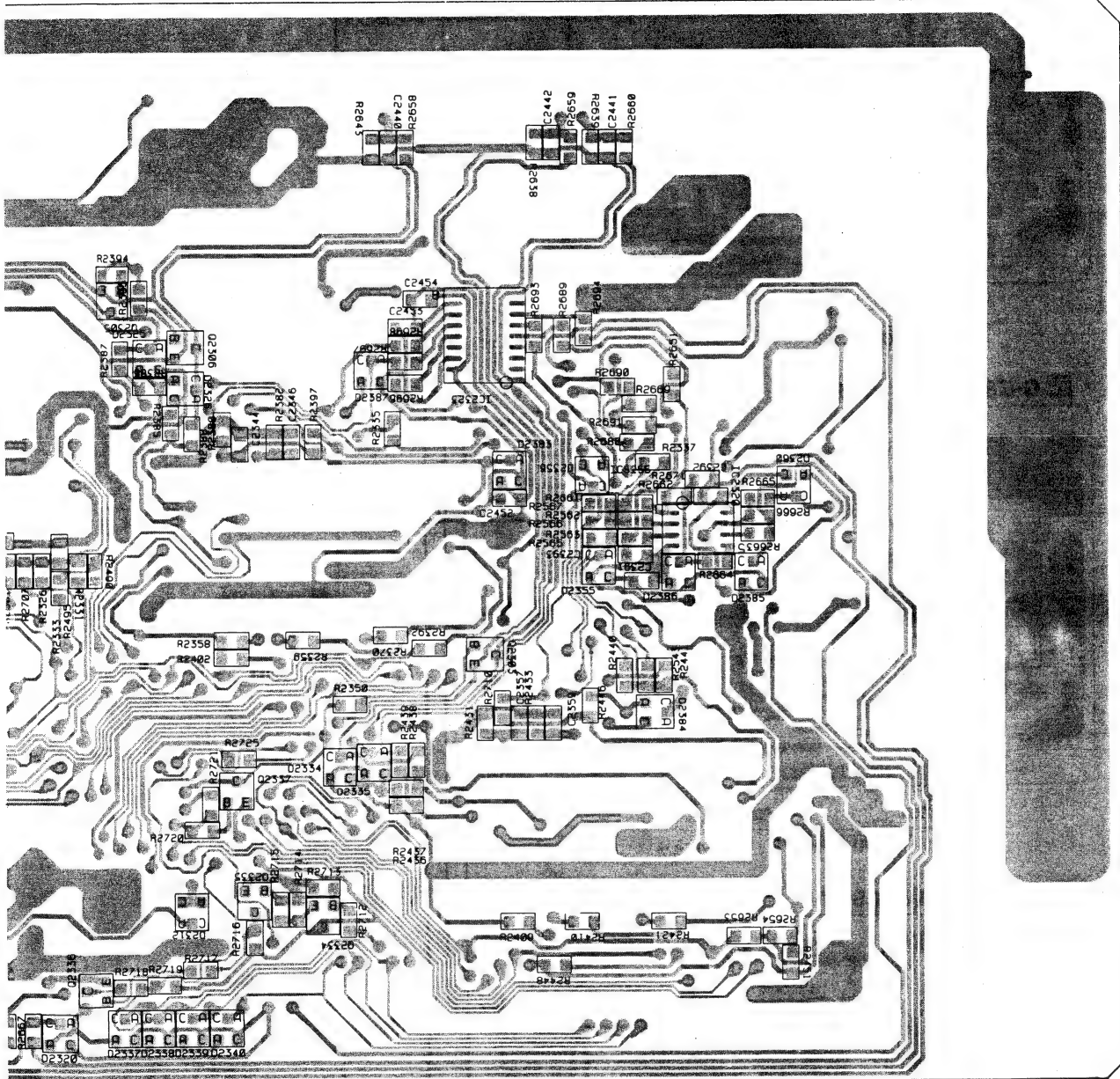
Q2339 IC2313 IC2311 Q2308 Q2307  
Q2329 Q2330

Q2333 Q2332

Q2336

- This PCB is double sided.



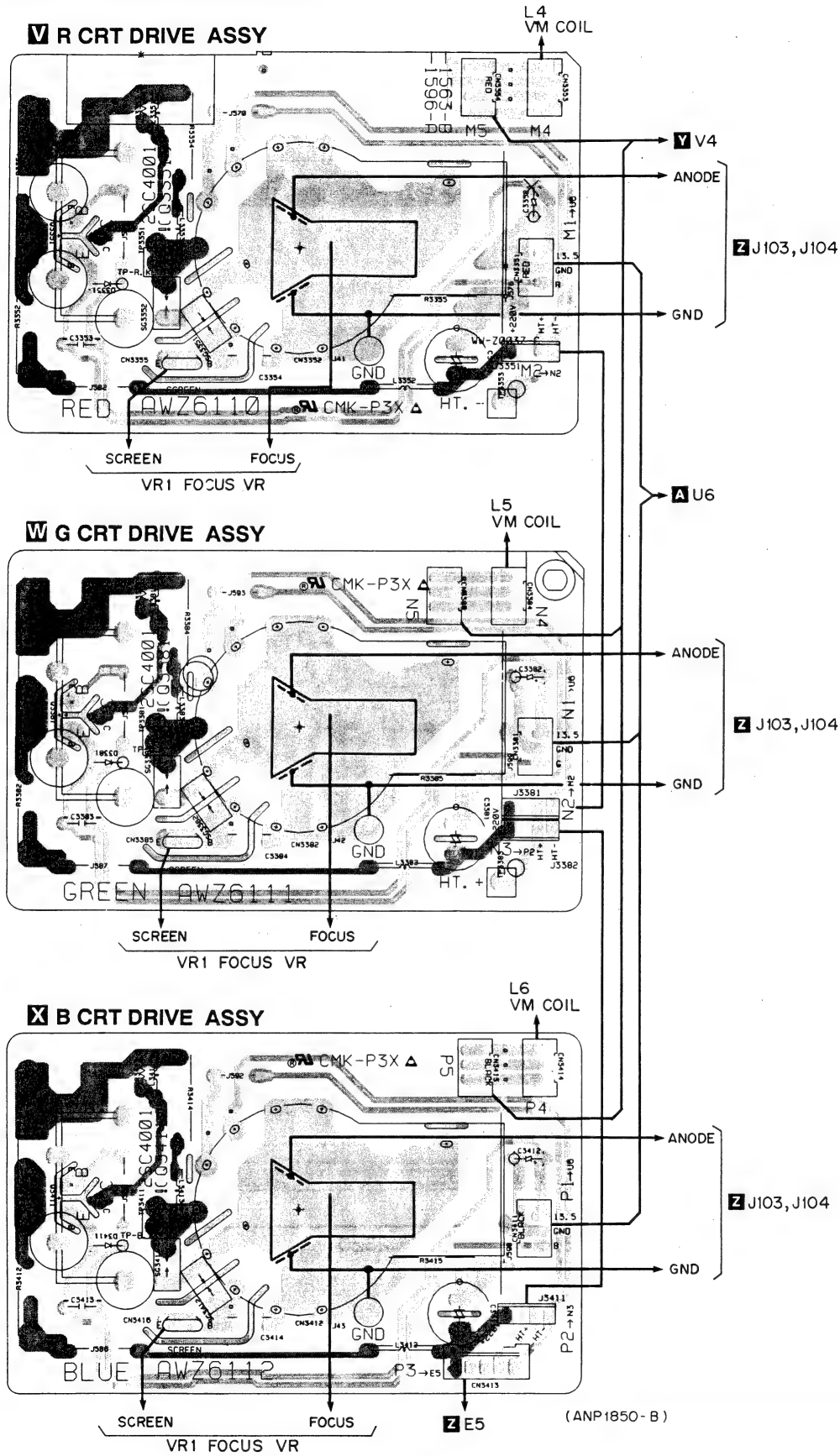


Q2305 Q2306  
Q2336 Q2337 Q2335 Q2334

IC2323  
Q2303

IC2320

4.12 R, G AND B CRT DRIVE ASSY

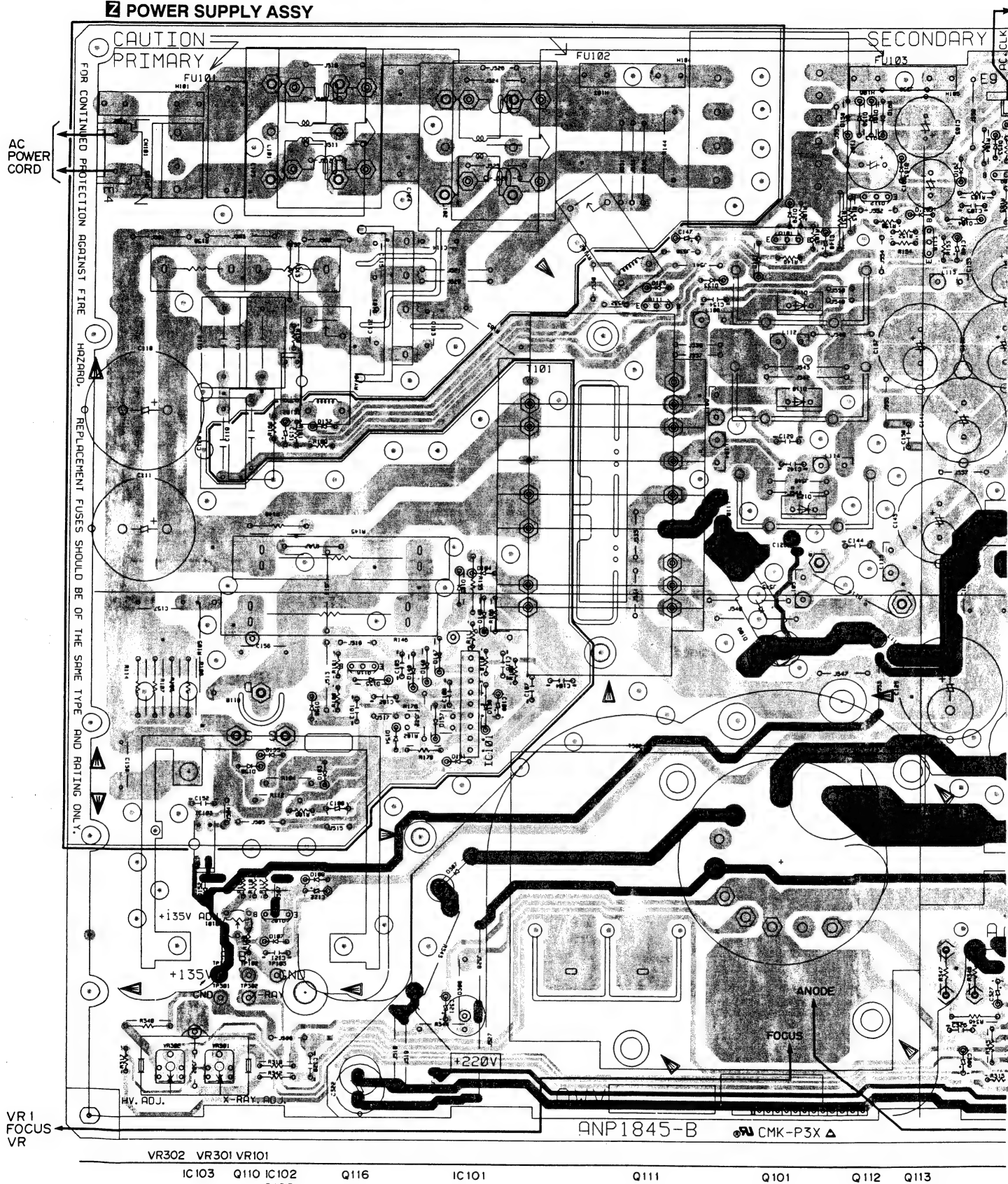


• This diagram is viewed from the mounted parts side.  
■ mark shows a high voltage generation point



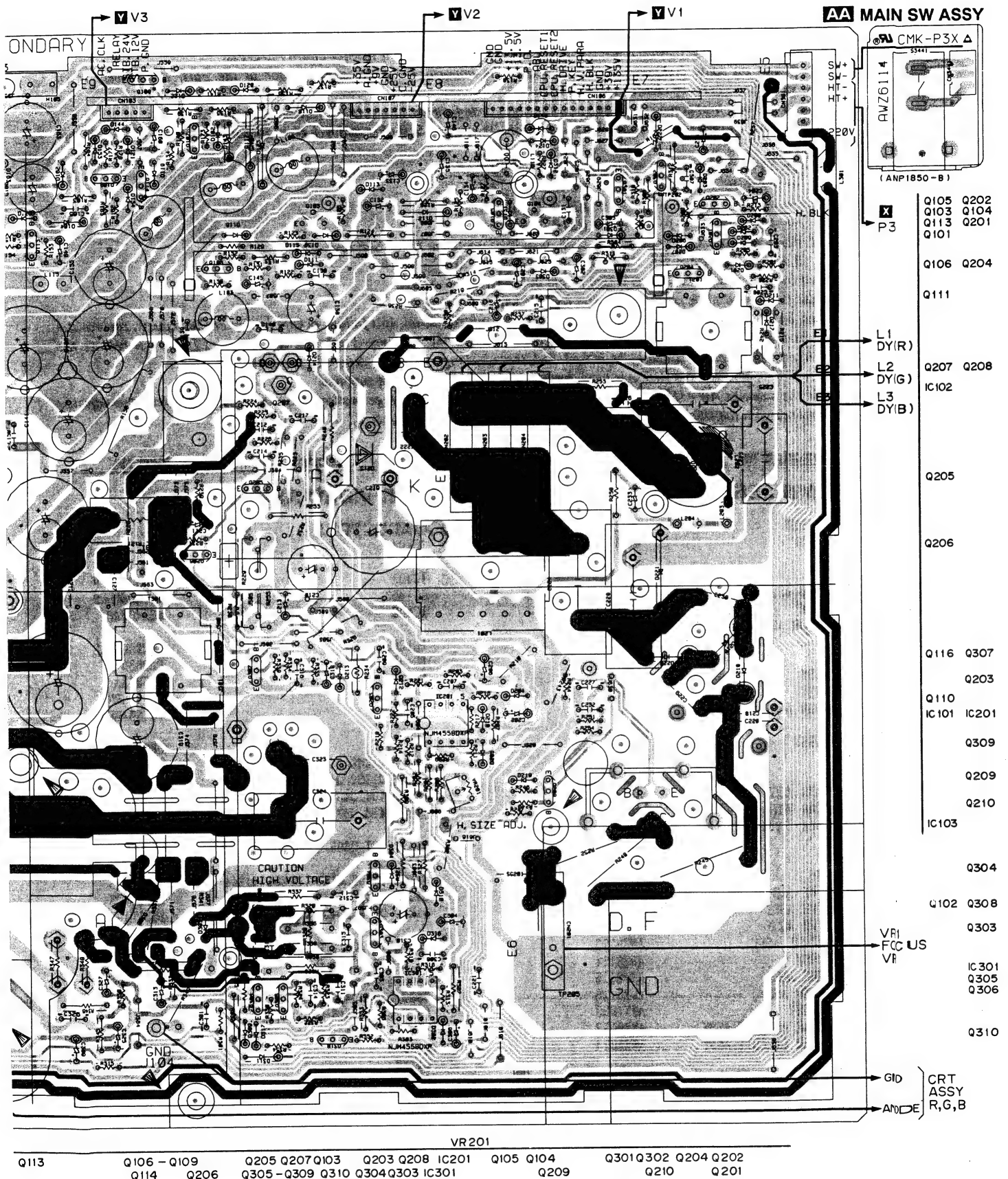
# 4.14 POWER SUPPLY AND MAIN SW ASSEMBLIES

## POWER SUPPLY ASSY



- mark shows the charged section (Power supply primary side circuit).
- mark shows a high voltage generation point (excepting the charged section).





● This diagram is viewed from the mounted parts side.

## 5. PCB PARTS LIST

NOTES: ● Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.

● The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

● When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560  $\Omega$   $\rightarrow$   $56 \times 10^1 \rightarrow$  561 ..... RD1/4PU  $\boxed{5}\boxed{6}\boxed{1}J$

47k  $\Omega$   $\rightarrow$   $47 \times 10^3 \rightarrow$  473 ..... RD1/4PU  $\boxed{4}\boxed{7}\boxed{3}J$

0.5  $\Omega$   $\rightarrow$  0R5 ..... RN2H  $\boxed{0}\boxed{R}\boxed{5}K$

1  $\Omega$   $\rightarrow$  1R0 ..... RSIP  $\boxed{1}\boxed{R}\boxed{0}K$

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k  $\Omega$   $\rightarrow$   $562 \times 10^1 \rightarrow$  5621 ..... RN1/4PC  $\boxed{5}\boxed{6}\boxed{2}\boxed{1}F$

● Parts marked by  $\star$  are important parts which relate in X-rays radiation.

If any of these parts need to be replaced, always replace with specified parts.

● Parts marked by X are important parts which relate in X-rays radiation. If a failure occurs in any of these parts, replace the printed circuit board assembly where the relevant part has already been adjusted as a working component. Do not replace the actual part itself. If any part marked by X is replaced, there is danger of being exposed to X-rays.

● For POWER SUPPLY ASSY, AWV1558 is used, but for servicing, AWV1565 is supplied.

AWV1565 is the same as AWV1558 of which X-ray protection and high voltage sections have been adjusted and these adjusted parts are covered with the shield cases. Therefore, AWV1565 need not be adjusted.

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
<b>LIST OF ASSEMBLIES</b>				<b>A TUNER-VIDEO ASSY</b>			
$\star$		POWER SUPPLY ASSY	AWV1565	<b>SEMICONDUCTORS</b>			
		TUNER-VIDEO ASSY	AWV1559	IC804		AT24C08-10PC	
NSP	AV I/O ASSY	AWV1560		IC1301		CXA1734S	
	└ CONVERGENCE ASSY	AWZ6098		IC403		MC14011BCP	
	└ AV I/O ASSY	AWZ6099		IC1353		MC14066BCP	
	└ Y/C SELECTOR ASSY	AWZ6100		IC802		MC34064P	
NSP	P IN P ASSY	AWV1561		IC1203		NJM7809FAS	
	└ P IN P ASSY	AWZ6101		IC402		PA0030	
	└ EXT SP ASSY	AWZ6102		IC801		PD5363A	
	└ B CONNECTOR ASSY	AWZ6103		IC401		TA8845BN	
				IC803		TC4094BP	
NSP	TUNER 2-ISC ASSY	AWV1562		IC1351		UPC1853CT-01	
	└ ISC ASSY	AWZ6104		Q1202, Q1206, Q1208, Q1213, Q1302		2SA933S	
	└ VM ASSY	AWZ6105		Q1351, Q1352, Q1357-Q1359		2SA933S	
	└ A CONNECTOR ASSY	AWZ6106		Q403, Q404, Q406, Q409-Q411		2SA933S	
	└ FULL CINEMA MUTE ASSY	AWZ6107		Q416-Q418, Q423-Q426, Q444		2SA933S	
	└ FULL CINEMA CONVER ASSY	AWZ6108					
NSP	AUDIO ASSY	AWV1563		Q447, Q801, Q805, Q812, Q821		2SA933S	
	└ AUDIO ASSY	AWZ6109		Q823-Q827		2SA933S	
	└ R. CRT DRIVE ASSY	AWZ6110		Q1204, Q1205, Q1207, Q1209-Q1211		2SC1740S	
	└ G. CRT DRIVE ASSY	AWZ6111		Q1303, Q1304, Q1354-Q1356		2SC1740S	
	└ B. CRT DRIVE ASSY	AWZ6112		Q1360-Q1366, Q401, Q402, Q405		2SC1740S	
	└ FRONT CONTROL ASSY	AWZ6113		Q407, Q408, Q412-Q415		2SC1740S	
	└ MAIN SW ASSY	AWZ6114		Q419-Q421, Q427-Q442		2SC1740S	
	└ IR RECEIVER ASSY	AWZ6115		Q445, Q446, Q450-Q452		2SC1740S	
	└ SUB RECEIVER ASSY	AWZ6116		Q802, Q803, Q806-Q809		2SC1740S	
	└ RECEIVER ASSY	AWX1069		Q813, Q814, Q816-Q820, Q822		2SC1740S	
	└└ RECEIVER ELEMENT ASSY	AWZ6073					
	└└ RECEIVER CIRCUIT ASSY	AWZ6074					
NSP	3D Y/C ASSY	AWV1564		Q422		2SC2235	
	└ 3D Y/C ASSY	AWZ6117		Q1212		2SC2878	
	└ FRONT INPUT ASSY	AWZ6118		Q804, Q1203		2SD880	
	└ D CONNECTOR ASSY	AWZ6119		Q443		2SK117	
	└ PINP SELECTOR ASSY	AWZ6120					

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	Q1201, Q1301		XDC124ES		C480		CCCSL560J50
	D1207-D1211, D1352, D1353		HSS104-02		C469, C471		CCCSL680J50
	D1355-D1366, D402-D404, D411-D413		HSS104-02		C1305, C1310, C1360, C410, C412		CEAS010M50
	D426-D432, D435, D436		HSS104-02		C418, C419, C431, C804		CEAS010M50
	D439, D440, D443, D444, D448		HSS104-02		C810, C820-C823, C835, C840		CEAS010M50
	D455, D456, D462, D464-D466		HSS104-02		C812, C837		CEAS0R1M50
	D468, D471, D472-D474, D476-D479		HSS104-02		C1213, C432		CEAS100M50
	D482-D485, D487, D801, D802		HSS104-02		C456, C457, C460, C467, C811		CEAS100M50
	D804, D805, D807-D809		HSS104-02		C449, C839		CEAS101M10
	D811, D812, D816-D818		HSS104-02		C408, C420, C458		CEAS101M25
	D838-D841, D867-D871		HSS104-02		C465, C482		CEAS102M16
	D873-D877, D889		HSS104-02		C806		CEAS102M35
	D408		HZS9C3L		C1215, C1385		CEAS220M50
	D441		MA723		C1356, C1359, C1370-C1373		CEAS2R2M50
	D1301, D1302, D409, D410		MTZJ15		C1387-C1389, C406, C407, C413		CEAS2R2M50
	D415, D416, D420-D424		MTZJ15		C472		CEAS2R2M50
	D437, D438, D442, D445-D447		MTZJ15		C824		CEAS330M35
	D449-D454, D457-D461, D463		MTZJ15		C1374		CEAS331M16
	D467, D469, D470, D475, D843		MTZJ15		C836		CEAS331M50
	D845, D847		MTZJ15		C424		CEAS471M10
	D803		MTZJ5. 1B		C1364, C1366		CEAS3R3M50
	D414, D1201, D1204, D806, D810, D813		MTZJ6. 8		C1221, C1369		CEAS470M25
	D819-D837, D842, D844, D846		MTZJ6. 8		C1376, C1379, C415, C416, C423		CEAS470M25
	D848-D866, D872, D878-D884		MTZJ6. 8		C430, C435, C454, C473, C819		CEAS470M25
	D401		RD2. 2ESB1		C827, C846, C851		CEAS470M25
	D1203		RD33ESB3		C1217		CEAS471M16
	D1354		RD4. 3ESB3		C1307, C1316		CEAS4R7M50
	D1351		RD4. 7ESB3		C1319, C1320, C1322, C417, C462		CEAS4R7M50
	D1202		RD5. 6ESB3		C826		CEASR22M50
	D405-D407, D417-D419, D425		S5688G		C1312, C434		CEASR47M50
	D433, D434		S5688G				
	D488, D489		1SS244		C1247, C1251, C1318		CEHQ101M25
					C807		CEHQ010M50
					C1301, C1306, C1315, C1317		CEHQ4R7M50
					C1303, C1204, C1212		CEHQ100M50
					C808, C1205		CEHQ101M10
					C1245, C1249		CEHQ331M16
					C1220		CEHQ470M25
					C1206		CEHQ471M10
					C1308		CFTA 224J50
					C1211, C440, C825, C838		CKC/B 102K50
					C479		CKC/B 103K50
					C831		CCCH 01J50
					C1365, C1367		CKC/B 152K50
					C1302, C1309		CKC/B 222K50
					C1253		CKC/B 391K50
					C843		CKC/B 471K50
					C405		CKC/B 472K50
					C815		CKC/B 561K50
					C1201, C1202, C1207, C1216, C1224		CKC/F 103Z50
					C1246, C1248, C1321, C1357, C409		CKC/F 103Z50
					C421, C436-C439, C802, C803		CKC/F 103Z50
					C805, C809, C813, C818, C828		CKC/F 103Z50
					C834, C842, C845, C852		CKC/F 103Z50
					C1368, C1375, C1377, C433, C459		CKC/F 473Z50
					C466, C474, C483, C816		CKC/F 473Z50
					C1386, C841		QQA1 02J50
					C402		QQA1 03J50
					C1352, C1361, C1363, C401, C422		QQA1 04J50
					C461		QQA1 04J50

Mark	No.	Description	Part No.
	C411		CQMA123J50
	C404		CQMA183J50
	C1353		CQMA222J50
	C1355, C1358		CQMA223J50
	C1314		CQMA272J50
	C414		CQMA392J50
	C1313, C801		CQMA473J50
	C1354, C476		CQMA681J50
	C1362, C1378		CQMA682J50
	C444, C445		CQMA683J50
	C1351		CQMA823J50
<b>RESISTORS</b>			
	R464, R465, R470-R472		RD1/2PM100J
	R466		RD1/2PM120J
	R810		RD1/2PM122J
	R515		RD1/2PM221J
	R1206, R468, R469, R474		RD1/2PM271J
	R1207, R1209		RD1/2PM681J
	R679		RD1/2PM6R8J
	R1389		RD1/2PMFL330J
	R809		RD1/4PMFL3R9J
△	R958, R959		RD1/4PMFL3R9J
	R1305		RN1/4PC4302F
	R1307		RN1/4PC6202F
	R458		RS1MMF220J
	R1353		RS1MMF470J
	R1261		RSS2MM220J
△	R641		RS2LMF4R7J
△	R1205		RS2MMF220J
△	R1259		RS2LMF010J
	R830		RS3LMF100J
	VR1201(4.7kΩ)		ACP1042
	VR801		VRTS6VS153
	Other Resistors		RD1/4PU□□□J
<b>OTHERS</b>			
	DL406	DELAY LINE	ATN1014
		PULG CORD	ADE-082
	J1203	3P HOUSING WIRE	ADX2240
		PIN JACK(1P)	AKB1111
	CN1351	PHONO JACK 2-P	AKB1151
		HEAT SINK	ANH-880
	X801	CERAMIC RESONATOR	ASS1015
	X402	CERAMIC RESONATOR	ASS1019
	X401	CRYSTAL RESONATOR	ASS1091
	CN405	PLUG 10-P	KM2001A10
	CN404	19P PLUG	KM2001A19
	CN805	7P PLUG	KM2001A7
	CN801	PLUG 8-P	KM250MA8B
	CN804	PLUG 8-P	KM250MA8R
	CN401	PLUG 9-P	KM250MA9R
	CN802	10P SOCKET	KP250NA10
	CN809	12P SOCKET	KP250NA12
	CN1202, CN803	SOCKET 15-P	KP250NA15
	CN808	SOCKET 3-P	KP250NA3
	CN811, CN814	SOCKET 4-P	KP250NA4
	CN1355, CN813	SOCKET 5-P	KP250NA5
	CN1354	SOCKET 7-P	KP250NA7
	CN1203, CN403, CN807	8P SOCKET	KP250NA8
	CN402	9P SOCKET	KP250NA9
		SCREW	PBZ30P080FMC

Mark	No.	Description	Part No.
<b>B AV I/O ASSY</b>			
<b>SEMICONDUCTORS</b>			
	IC1503		BA7649A
	IC1502		NJM78M09FAS
	IC1501, IC1504		TC4051BF
	IC1651		TC74HC4094AF
	Q1510-Q1512, Q1514, Q1515		2SA1162
	Q1518, Q1519, Q1553		2SA1162
	Q1501-Q1509, Q1513, Q1516, Q1517		2SC2712
	Q1520, Q1525, Q1551, Q1552		2SC2712
	Q1651-Q1655		2SC2712
	Q1550		2SC3377
	D1501, D1503, D1504, D1520-D1523		1SS226
	D1527, D1538, D1539		1SS226
	D1528-D1537		RD15MB
	D1502		RD3. 6MB
	D1660		RD6. 2MB
	D1505-D1507, D1651, D1655-D1657		RD6. 8MB
	D1661, D1662		RD6. 8MB
	D1524-D1526		RD9. 1MB
<b>COIL</b>			
	L1501		ATH1046
<b>CAPACITORS</b>			
	C1651-C1653		CCSQCH101J50
	C1503, C1504, C1510, C1528, C1531		CEAS101M10
	C1539, C1545, C1637, C1638, C1655		CEAS101M10
	C1508, C1533		CEAS101M25
	C1514		CEAS101M50
	C1501, C1506		CEAS102M10
	C1541		CEAS102M16
	C1502, C1505, C1507		CEAS221M10
	C1517, C1536-C1538, C1639, C1640		CEAS2R2M50
	C1520-C1527, C1530, C1532		CEAS470M25
	C1543, C1544		CEAS470M25
	C1512, C1513		CEAS471M10
	C1518		CEHAQ101M25
	C1515		CEHAQ102M10
	C1509, C1534, C1547, C1552, C1654		CKCYF103Z50
	C1516, C1519, C1529, C1540, C1546		CKCYF473Z50
<b>RESISTORS</b>			
	R1527, R1538		RD1/2PM181J
	R1582		RD1/2PM331J
	R1670		RD1/2PMFL271J
	R1621		RD1/4PMFL470J
	R1676		RD1/2PMFL470J
	R1504, R1507		RD1/4PM750J
	R1531, R1547, R1548, R1583, R1612		RD1/4PMFL3R9J
	R1623, R1635, R1637		RD1/4PMFL3R9J
△	R1558		RS2MMF150J
	Other Resistors		RS1/10S□□□J
<b>OTHERS</b>			
		PIN JACK(12P)	AKB1114
		PIN JACK(3P)	AKB1137
	CN1505	PLUG 10-P	KM2001A10
	CN1507	11P PLUG	KM2001A11
	CN1508	7P PLUG	KM2001A7



Mark	No.	Description	Part No.
	CN1503	PLUG 3-P	KM250MA3
	CN1504	PLUG 9-P	KM250MA9B
	CN1506	10P PLUG	KM250NA10L
	CN1509	PLUG 15-P	KM250NA15L

**C Y/C SELECTOR ASSY****SEMICONDUCTORS**

IC1701  
Q1521, Q1522, Q1524, Q1711, Q1712  
Q1523, Q1701-Q1708  
D1701-D1703

TC4052BF  
2SA1162  
2SC2712  
RD9. 1MB

**CAPACITORS**

C1705  
C1551  
C1550, C1710-C1712  
C1706, C1713-C1715, C1730-C1732  
C1549

CEAS101M25  
CEAS010M50  
CEAS470M25  
CKCYF103Z50  
CKSQYF102Z50

C1548

CKSQYF103Z50

**RESISTORS**

R1701, R1703, R1705  
R1738, R1739  
Other Resistors

RD1/2PM750J  
RD1/2PM821J  
RS1/10S□□□J

**OTHERS**

CN1701 SOCKET

AKP1066

**D P IN P SELECTOR ASSY****SEMICONDUCTORS**

IC1751  
Q1751  
D1751-D1755

BA7649A  
2SA1162  
1SS226

**CAPACITORS**

C1751, C1752, C1754, C1755  
C1753

CEAS470M25  
CKCYF473Z50

**RESISTORS**

All Resistors

RS1/10S□□□J

**OTHERS**

CN1751 11P SOCKET  
CN1752 7P SOCKET

KP200IA11L  
KP200IA7L

**E FRONT INPUT ASSY****SEMICONDUCTORS**

Q3931-Q3933  
D3931, D3932

2SC2712  
RD15MB

**CAPACITORS**

C3931, C3933-C3935  
C3936  
C3932

CEAS470M25  
CKSQYF103Z50  
CKSQYF473Z50

Mark	No.	Description	Part No.
<b>RESISTORS</b>			
	R3948		RD1/2PMFL750J
	R3931		RD1/4PMFL3R9J
	Other Resistors		RS1/10S□□□J

**OTHERS**

	PIN JACK (1P)	AKB1111
	PIN JACK (1P)	AKB1112
	PIN JACK (1P)	AKB1113
	SOCKET	AKP1051
CN3931	PLUG 9-P	KM250MA9

**F IR RECEIVER ASSY****SEMICONDUCTOR**

Q3961

2SC1740S

**COIL**

L3951

LAU221K

**CAPACITORS**

C3951  
C3961

CEJA101M10  
CKCYB103K50

**RESISTORS**

All Resistors

RD1/4PU□□□J

**OTHERS**

CABLE HOLDER  
SHIELD CASE A (MET)

AKT1012  
ANK7009

**G SUB RECEIVER ASSY****SEMICONDUCTOR**

IC3972

M5223P

**CAPACITORS**

C3975  
C3972-C3974  
C3971

CEAS010M50  
CKCYB103K50  
CKCYX104M16

**RESISTORS**

All Resistors

RD1/4PU□□□J

**OTHERS**

CABLE HOLDER  
SHIELD CASE B (MET)

AKT1012  
ANK7010

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Mark	No.	Description	Part No.
<b>H FRONT CONTROL ASSY</b>			
<b>SEMICONDUCTORS</b>			
	IC3882		M5218AL
	IC3881		PD5136
	Q3881		2SA933S
	Q3882, Q3883		2SC1740S
	D3882		AEL1152
	D3881, D3883, D3885, D3886		HSS104-02
	D3884		MTZJ3. 0
	PC3881		U5C-08SC
<b>SWITCHES</b>			
	S3881-S3892		ASG1034
<b>CAPACITORS</b>			
	C3884, C3885		CCDSL221J50
	C3881		CEJA100M35
	C3889		CEJA221M10
	C3886		CEJA2R2M50
	C3882		CEJA330M25
	C3883		CFTXA104J50
	C3891		CKCYB471K50
	C3888		CKCYB472K50
	C3890		CKCYF103Z50
	C3887		CKCYF473Z50
<b>RESISTORS</b>			
	R3886		RD1/2PM561J
	R3906		RD1/2PMF470J
	R3887		RD1/2PMF820J
	VR3901 (47kΩ)		ACP1045
	Other Resistors		RD1/4PU□□□□J
<b>OTHERS</b>			
	CABLE HOLDER		AKT1012
	LED HOLDER		AMR1733
	CERAMIC OSCILLATOR		ASS1043
	X3881		KM250MA3
	CN3882		KM250MA5
	CN3881		KM250MA5

## I RECEIVER ELEMENT ASSY

<b>SEMICONDUCTORS</b>			
	IC2602		PD410PI
	IC2601		PFC502
	IC2603		SBX8025-H
	Q2602		2SC2712
	Q2601		2SK302
<b>COIL</b>			
	L2601		LAU120J
<b>CAPACITORS</b>			
	C2604		CCSQCH820J50
	C2607		CEAL470M6R3
	C2605		CKSQYB103K50
	C2603		CKSQYB473K50
	C2601, C2606		CKSQYF104Z25
	C2602		CQMA182J50

Mark	No.	Description	Part No.
<b>RESISTORS</b>			
	All Resistors		RS1/10S□□□□J
<b>OTHERS</b>			
	LED HOLDER (PLS)		AMR7040
<b>J RECEIVER CIRCUIT ASSY</b>			
<b>SEMICONDUCTORS</b>			
	IC2501		CXA1600P
	IC2502, IC2504		TC7SU04F
	D2501-D2503		1SS352
<b>COILS</b>			
	L2501, L2502		LAU221K
<b>CAPACITORS</b>			
	TC2501		ACM7001
	C2520		CCSQCH150J50
	C2514		CCSQCH681J50
	C2501		CEAL100M6R3
	C2508		CEAL101M6R3
	C2503		CEAL4R7M35
	C2504		CEALR10M50
	C2507		CKSQYB103K50
	C2513		CKSQYB104K25
	C2502, C2506		CKSQYB473K50
<b>RESISTORS</b>			
	All Resistors		RS1/10S□□□□J
<b>OTHERS</b>			
	X2501 CERAMIC RESONATOR		ASS7005
<b>K ISC ASSY</b>			
<b>SEMICONDUCTORS</b>			
	IC2204		LH5268AN1TLL
	IC2202		PD5368
	IC2203		TC74HC02AF
	IC2201		TC74HC123AF
	Q2105, Q2107, Q2109, Q2214, Q2215		2SA1162
	Q2213		2SA1515
	Q2102		2SC1740S
	Q2101		2SC2235
	Q2103, Q2104, Q2106, Q2108		2SC2712
	Q2202, Q2203, Q2206-Q2212		2SC2712
	Q2201, Q2204		XDA124EK
	Q2205		XDC143EK
	D2104, D2105, D2218-D2224		1SS226
	D2201-D2208, D2210, D2215, D2217		1SS352
	D2209		RD3. 0ESB1
	D2216		HSS104-02
	D2102		RD33MB
	D2101		RD5. 6MB
<b>COILS</b>			
	L2201		LCTA220J3225
	L2101-L2103		LAU2R2K

Mark	No.	Description	Part No.
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**CAPACITORS**

C2214		ACH1246	
C2201, C2203		CCSQCH102J50	
C2114		CCSQSL470J50	
C2102, C2105, C2106, C2206		CEHAQ100M50	
C2103, C2208		CEHAQ101M10	

C2218		CEHAQ101M50	
C2109, C2119		CEHAQ331M16	
C2101, C2107, C2108, C2205		CEHAQ470M25	
C2211, C2212, C2215		CEHAQ470M25	
C2104, C2118		CEHAQ471M16	

C2204		CEHAQ4R7M50	
C2115		CKSQYF102Z50	
C2110-C2113, C2116, C2117, C2202		CKSQYF103Z50	
C2207, C2209, C2210, C2213, C2217		CKSQYF103Z50	
C2219		CKSQYF103Z50	

C2216		CKSQYF473Z50	
C2120		CCSQSL121J50	
C2121		CCSQSL391J50	

**RESISTORS**

R2102		RD1/2PM271J	
R2265		RD1/2PM330J	
R2103, R2104		RD1/2PM681J	
R2205		RD1/4PU102J	
R2126		RD1/4PU562J	

R2250		RS1MMF220J	
R2101		RS2MMF220J	
VR2101 (2.2kΩ)		ACP1041	
Other Resistors		RS1/10S□□□J	

**OTHERS**

CN2204	JACK	AKN-209	
CN2202	JACK	AKN1028	
CN2206	JACK	AKN1061	
X2201	CERAMIC RESONATOR	ASS1025	
CN2203	12P PLUG	KM250NA12L	
CN2201	PLUG 3-P	KM250NA3L	
CN2101	8P PLUG	KM250NA8L	

**L A CONNECTOR ASSY****OTHERS**

5061	CABLE HOLDER	AKT1011	
J3281	JUMPER WIRE	D15A13-150-2468	
CN5064	10P SOCKET	KP2001A10L	
CN5063	19P SOCKET	KP2001A19L	

**M B CONNECTOR ASSY****OTHERS**

CN3285	10P SOCKET	KP2001A10L	
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**N D CONNECTOR ASSY****OTHERS**

CN3280	10P SOCKET	KP2001A10L	
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Mark	No.	Description	Part No.
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**OP IN P ASSY****SEMICONDUCTORS**

IC3004		HA11579	
IC3002		HD49420FS	
IC3001		HM534612P-12	
IC3006, IC6563		M5233P	
IC3005		NJM7805FAS	

IC3003		TC4538BF	
IC6561, IC6562		TC74HC4066AF	
Q1817, Q1901, Q1902, Q1906-Q1927		2SA1162	
Q3013, Q6561-Q6563, Q6570, Q6574		2SA1162	
Q6576-Q6578, Q6582, Q6583, Q6587		2SA1162	

Q6593, Q6594		2SA1162	
Q1801-Q1809, Q1813-Q1816		2SC2712	
Q1903, Q1904, Q1928-Q1932		2SC2712	
Q3001-Q3003, Q3005, Q3007		2SC2712	
Q6564-Q6569, Q6571-Q6573, Q6575		2SC2712	

Q6579-Q6581, Q6584-Q6586		2SC2712	
Q6588-Q6592, Q6595-Q6597		2SC2712	
Q1812, Q1905		2SK208	
Q3006, Q3010-Q3012		XDC143EX	
D1912-D1914, D3003-D3005		1SS226	

D1801, D1803, D1906-D1911, D3001		1SS332	
D6561-D6573		1SS332	
D1901-D1905		RD15MB	
D3007		RD6.1MB	

**COILS AND FILTERS**

F3002		ATF1166	
L1902, L3006		ATH1046	
L1803		ATX1008	
F3001		CTJ1002	
L3008		LCTA101J3225	

L1802		LCTA120J3225	
L3007		LCTA80J3225	
L1801		LCTA8R8J3225	
L3001-L3005		LCTA8R2J3225	

**CAPACITORS**

C1816, C3022, C3069, C6566-C6568		CCSQCH101J50	
C6583		CCSQCH101J50	
C1804, C3061		CCSQCH121J50	
C3017, C3018, C3071		CCSQCH151J50	
C3060		CCSQCH220J50	

C1805		CCSQCH221J50	
C3049		CCSQCH270J50	
C3027, C3030		CCSQCH271J50	
C3062, C3068		CCSQCH330J50	
C6569		CCSQCH390J50	

C3070		CCSQCH470J50	
C1901		CCSQSL101J50	
C1807		CCSQSL122J50	
C1912		CCSQSL331J50	
C1808		CCSQSL821J50	

C1902, C3050, C3053		CEA□10M50	
C1802, C1809, C1810, C1903		CEA□10M50	
C1908-C1910, C3028, C3039, C3051		CEA□10M50	
C3056, C3057, C3065, C3072		CEA□10M50	
C6561, C6562, C6564, C6570, C6576		CEA□10M50	
C6578, C6580, C6581		CEA□10M50	

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Mark	No.	Description	Part No.
	C3012, C3014, C3040, C3046, C3052 C3074 C1813, C3075, C6572, C6579 C6584, C6585 C3015, C3016, C3026, C3064		CEAS101M10 CEAS101M10 CEAS101M25 CEAS101M25 CEAS220M50
	C3019 C1803, C1811 C3078 C1815, C1817, C3024, C6573, C6577 C1911		CEAS2R2M50 CEAS330M25 CEAS330M50 CEAS470M25 CEAS471M16
	C3048 C3037, C3038 C3020, C3021 C3029, C3031 C3035, C3036, C6574		CEAS4R7M50 CEASR22M50 CEASR47M50 CFTXA334J50 CKSQYB102K50
	C1801, C3006, C3047, C3058 C3001-C3004, C3054, C3059 C3063 C1806 C3005, C3007-C3010, C3013, C3023		CKSQYB103K50 CKSQYB223K50 CKSQYB333K50 CKSQYB392K50 CKSQYF104Z25
	C3041-C3045, C3055, C3067, C3073 C3076, C3079, C3080 C1904-C1907 C1814, C3011, C6563, C6571, C6582 C6565		CKSQYF104Z25 CKSQYF104Z25 CKSQYF222Z50 CKSQYF473Z50 CQMA152J50
	C3033, C3034 C3077		CQMA153J50 CKDYF103Z50

## RESISTORS

R1835		RD1/2PMFL150J
R1901		RSIMMF1R8J
R3067, R3069		RS3LMF220J
VR3002 (470Ω)		ACP1039
VR3001, VR6561 (1kΩ)		ACP1040
VR3003, VR6562 (4.7kΩ)		ACP1042
Other Resistors		RS1/10S□□□J

## OTHERS

DL1901		ATN1042
	HEAT SINK	ANH-880
X3001	CRYSTAL RESONATOR	ASS1091
CN1803	PLUG 10-P	KM200IA10
CN1801	4-P PLUG	KM250NA4L
CN1802	8P PLUG	KM250NA8L
CN1901	9P PLUG	KM250NA9L
	SCREW	PBZ30P080FMC

## P 3D Y/C ASSY

## SEMICONDUCTORS

IC3508		MSM514222B-30
IC3506, IC3507		NJM2233BLA
IC3503, IC3504		NJM7805FAS
IC3511		UPC1861GR
IC3502		UPC1862GS
IC3501		UPC659AGS
IC3510		UPD42280V-30
IC3505		UPD6487GF3BA
Q3503, Q3504, Q3506, Q3513, Q3515		2SA1162
Q3501, Q3502, Q3505, Q3507-Q3512		2SC2712

Mark	No.	Description	Part No.
	Q3514, Q3520, Q3521, Q3523-Q3525 Q3529, Q3533-Q3537 D3501 D3502-D3505		2SC2712 2SC2712 1SS184 1SS226

## COILS AND FILTERS

F3502, F3503 F3504 L3522, L3523, L3532 DL3501 L3502-L3506, L3508-L3520, L3526  L3528-L3531 L3507 L3524, L3525 L3501, L3527		ATF1127 ATF1179 ATH1046 ATN1011 ATX1008  ATX1008 LCTA100J3225 LCTA150J3225 LCTA220J3225
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## CAPACITORS

C3521 C3628 C3519 C3537  C3531, C3561, C3627 C3501, C3533 C3515 C3543, C3544 C3518  C3623 C3502 C3504, C3512, C3517, C3528, C3558 C3568, C3578, C3599 C3569  C3523, C3539, C3546, C3548, C3551 C3566, C3567, C3582, C3583, C3597 C3604, C3606, C3608, C3610, C3612 C3620, C3622, C3624, C3625 C3525, C3542  C3530 C3586-C3588, C3592, C3593 C3560 C3535 C3629, C3630, C3632-C3634  C3540 C3536 C3513, C3514, C3516, C3520, C3524 C3526, C3527, C3532, C3534, C3538 C3541, C3545, C3549, C3550, C3555  C3559, C3562-C3565, C3589-C3591 C3594, C3595, C3600-C3603, C3605 C3503, C3505-C3511, C3547 C3552-C3554, C3556, C3557 C3571-C3573, C3577, C3596, C3598		CCSQCH100D50 CCSQCH120J50 CCSQCH151J50 CCSQCH271J50  CCSQCH330J50 CCSQCH390J50 CCSQCH470J50 CEAS010M50 CEAS0R1M50  CEAS100M50 CEAS101M25 CEAS221M10 CEAS221M10 CEAS2R2M50  CEAS470M25 CEAS470M25 CEAS470M25 CEAS470M25 CEAS4R7M50  CEASR47M50 CEHAQ331M16 CFTXA104J50 CKSQYB102K50 CKSQYB103K50  CKSQYB152K50 CKSQYB222K50 CKSQYF103Z50 CKSQYF103Z50 CKSQYF103Z50  CKSQYF103Z50 CKSQYF103Z50 CKSQYF104Z50 CKSQYF104Z50 CKSQYF104Z50  CKSQYF104Z50 CKSQYF222Z50 CQMA223J50
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## RESISTORS

R3646 R3595 R3594 VR3501 VR3502 Other Resistors		RSIMMF150J RSIMMF270J RS3LMF270J VRTS6VS222 VRTS6VS471 RS1/10S□□□J
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Mark	No.	Description	Part No.
<b>OTHERS</b>			
		HEAT SINK M	ANH-697
X3501		CRYSTAL RESONATOR	ASS1056
X3502		CERAMIC RESONATOR	ASS1112
CN3503		4-P PLUG	KM250NA4L
CN3501		PLUG 5-P	KM250NA5L
		SCREW	PBZ30P080FMC

**Q AUDIO ASSY****SEMICONDUCTORS**

IC2901	LA4280-P
Q2903	2SA933S
Q2902, Q2904-Q2906	2SC1740S
Q2901	2SD1276A
D2922	BR3371XJ30A
D2902-D2904, D2906, D2908-D2921	HSS104-02
D2924-D2927, D2929, D2930	HSS104-02
D2905, D2907	MTZJ6. 8
D2901	RD5. 6ESB3
D2928	RD9. 1ESB3
D2923	S5688G

**COILS**

L2901, L2902	ATH-133
L2903	ATF-163

**RELAY**

RY2903	ASR1040
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**CAPACITORS**

C2923, C2924	(3. 3 $\mu$ F/DC63V)	ACH1127
C2906, C2913		CCCSL151J50
C2939		CEHAQ220M50
C2922		CEHAQ221M10
C2925		CEHAQ470M25
C2901, C2905		CEHAQ471M50
C2908, C2911		CEHAQ100M50
C2909		CEHAQ101M25
C2920, C2921		CEHAQ222M35
C2938		CEHAQ100M50
C2907, C2910		CEHAQ330M50
C2912, C2917		CKCYB102K50
C2902		CKCYB561K50
C2903, C2926		CKCYF103Z50
C2914-C2916		CKCYF473Z50
C2918, C2919		CQMA124J50

**RESISTORS**

R2921, R2923	RD1/2PM152J
R2904	RN1/4PC2702F
R2903	RN1/4PC6201F
R2916, R2917	RD1/4PMFL100J
R2912, R2914	RD1/4PMFL2R2J
R2950	RT10PZ5R6K
Other Resistors	RD1/4PU□□□J

Mark	No.	Description	Part No.
<b>OTHERS</b>			
J2901		4P HOUSING WIRE	ADX2255
		PLATE SPRING	ANG1569
		HEAT SINK	ANH-880
		SCREW	BBZ30P060FMC
		SCREW	BBZ30P080FCU
CN2902		PLUG 8-P	KM250MA8
CN2903		PLUG 5-P	KM250NA5L
CN2904		7-P PLUG	KM250NA7L
		SCREW	PBZ30P080FMC

**R EXT SP ASSY****OTHERS**

CN6351	SPEAKER TERMINAL 4-P	AKE1030
	PLUG 4-P	KM250MA4

**S FULL CINEMA MUTE ASSY****SEMICONDUCTORS**

IC2009	TC4013BF
IC2002	TC74HC04AF
IC2001	TC74HC4040AF
IC2005	TC74HC4538AF
Q2002, Q2004-Q2006	2SC2712
Q2001	2SA1162
D2005-D2010, D2012-D2018	1SS352
D2020-D2022, D2024-D2034, D2036, D2037	1SS32
D2001-D2004, D2023, D2035	RD6. 8MB

**CAPACITORS**

C2005	CCSQCH151J50
C2002, C2004, C2007, C2011	CEAS170M25
C2001, C2003, C2006, C2010	CKCYF473Z50
C2008	CQMA171J50
C2009	CQPA62J100

**RESISTORS**

R2037	RD1/2PMFL3R9J
R2007	RN1/4PC1202F
VR2001	VRTS VS104
VR2002	VRTS VS103

Other Resistors

RS1/1 OS□□□J

**OTHERS**

CN2001	7P SOCKET	KP20 1A7L
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**T FULL CINEMA CONVER ASSY****SEMICONDUCTORS**

IC6801	CA00 7AM
IC6802	TC74HC4066AF
Q6802, Q6804	2SA11 62
Q6801, Q6803	2SC7 12
D6801-D6812	1SS2 6

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Mark	No.	Description	Part No.
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## CAPACITORS

C6803, C6804	CEAS101M10
C6801, C6802	CKCYF473Z50
C6805-C6807	CKSQYF473Z50

## RESISTORS

Other Resistors	RS1/10S□□□□J
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## OTHERS

CN6802	7P SOCKET	KP200IA7L
CN6801	9P SOCKET	KP200IA9L

## U CONVERGENCE ASSY

### SEMICONDUCTORS

IC2323	CA0007AM
IC2303, IC2311, IC2313, IC2320, IC2322	NJM4558M-D
IC2321	NJM78M05FAS
IC2312	NJM79M05FA
IC2301, IC2302	PA0053B

IC2307-IC2309	PM0002B
IC2317, IC2319	STK392-110
Q2302, Q2329, Q2330, Q2332, Q2333	2SA1162
Q2337, Q2338	2SA1162
Q2314	2SB950A

Q2303-Q2308, Q2310-Q2313	2SC2712
Q2316-Q2318, Q2322-Q2324	2SC2712
Q2326, Q2327, Q2334-Q2336, Q2339	2SC2712
Q2315	2SD1276A
Q2309	FMS1A

D2301, D2302, D2307, D2308, D2312	1SS226
D2314-D2316, D2320, D2325, D2326	1SS226
D2334, D2335, D2337-D2340	1SS226
D2343, D2344, D2347-D2353, D2355	1SS226
D2356, D2360	1SS226

D2365, D2366, D2382-D2387	1SS226
D2391, D2392	1SS226
D2305, D2379, D2380	1SS352
D2381	BR3371XJ30A
D2313, D2319	RD12MB

D2317, D2354	RD15MB
D2306	RD5. 1MB
D2318, D2323, D2324, D2332, D2333	RD6. 8MB
D2341, D2342, D2389, D2390	RD6. 8MB
D2367-D2378	S5688G
D2303	HSS104-02

### CAPACITORS

C2343-C2348, C2356-C2361	CCSQSL101J50
C2367-C2372	CCSQSL101J50
C2375	CCSQSL120J50
C2396, C2397, C2406-C2408	CCSQSL151J50
C2418-C2420	CCSQSL151J50

C2435-C2442	CCSQSL221J50
C2398	CCSQSL331J50
C2377	CCSQSL680J50
C2425	CEANP100M35
C2301, C2303, C2304, C2315	CEAS010M50
C2337	CEANP100M50

Mark	No.	Description	Part No.
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C2329, C2331, C2332, C2374	CEAS100M50
C2431, C2432	CEAS100M50
C2424	CEAS101M25
C2318	CEAS1R5M50
C2319, C2330	CEAS220M50

C2443	CEAS221M10
C2350	CEAS221M16
C2316, C2322	CEAS330M35
C2310, C2312, C2324, C2326, C2339	CEAS331M6
C2341, C2352, C2354, C2363, C2365	CEAS331M6

C2321, C2426	CEAS470M25
C2306	CEASR47M50
C2383, C2433, C2448, C2449	CEHAQ101M25
C2384	CEHAQ221M10
C2400, C2401, C2409, C2410	CEHAQ221M35

C2412, C2413, C2421, C2422	CEHAQ221M35
C2427, C2428	CEHAQ221M35
C2450	CEHAQ470M50
C2317	CFTYA184J50
C2320, C2328	CFTYA224J50

C2394	CKSQYB122K50
C2395	CKSQYB152K50
C2399	CKSQYB681K50
C2451	CCSQSL101J50
C2465	CKSQYF103Z50

C2308, C2309, C2311, C2323, C2325	CKSQYF473Z50
C2327, C2333-C2335, C2340, C2342	CKSQYF473Z50
C2351, C2353, C2355, C2362, C2364	CKSQYF473Z50
C2366, C2373, C2376, C2378, C2379	CKSQYF473Z50
C2385-C2389, C2391-C2393	CKSQYF473Z50

C2402-C2405, C2414-C2417	CKSQYF473Z50
C2429, C2430, C2434, C2444	CKSQYF473Z50
C2452-C2454	CKSQYF473Z50
C2307	CQMA102J50
C2349	CQMA104J50

C2302, C2305	CQMA471J50
C2314	CQMA821J50
C2313	CQPA152J100

### RESISTORS

R2617-R2622	RD1/2PM151J
R2335	RD1/4PM103J
R2341	RD1/4PM683J
R2605, R2606, R2631, R2632	RS1MMF220J
R2612, R2613, R2635-R2637	RS1MMF2R2J

R2614-R2616	RS1MMF470J
R2601	RS1MMF562J
R2634	RS2LMFR47J
R2602	RS2LMF010J
R2633, R2673	RS2MMFR47J

R2600, R2607, R2610	RS2MMF010J
R2668	RS3LMF150J
R2705	RS3LMF1R8J
R2611	RS3LMF2R2J
R2604	RS3LMF2R2J

R2544	RT5PZ560K
Other Resistors	RS1/10S□□□□J

Mark	No.	Description	Part No.
<b>OTHERS</b>			
		SCREW	ABA1056
		WASHER	ABE-053
		SCREW	BBZ30P080FCU
	CN2307	7P PLUG	KM2001A7
	CN2306	9P PLUG	KM2001A9
	CN2301	PLUG 6-P	KM250MA6L
	CN2303	PLUG 6-P	KM250MA6LR
	CN2304	PLUG 15-P	KM250NA15L
	CN2305	8P PLUG	KM250NA8L
		SCREW	PBZ30P080FMC

## V R.CRT DRIVE ASSY

### SEMICONDUCTORS

Q3351	2SC4001
D3351	S5688G

### COILS

SG3351, SG3352	AEX-019
L3352	LAU101K
L3351, L3353	LAU470K

### CAPACITORS

C3354 (1000pF/DC2kV)	ACG1001
C3351	ACH1283
C3352	CEAS101M25
C3353	CKCYB681K50

### RESISTORS

R3355	ACN-225
R3354	ACN1006
R3351, R3352	RS3LMF332J
Other Resistors	RD1/4PU□□□J

### OTHERS

	CRT SOCKET	AKG1005
	HEAT SINK M3	ANH1409
CN3353	PLUG 3-P	KM250MA3
CN3351, CN3354	PLUG 3-P	KM250MA3R
	SCREW	PMB30P100FMC

## W G.CRT DRIVE ASSY

### SEMICONDUCTORS

Q3381	2SC4001
D3381	S5688G

### COIL

SG3381, SG3382	AEX-019
L3382	LAU101K
L3381, L3383	LAU470K

### CAPACITORS

C3384 (1000pF/DC2kV)	ACG1001
C3381	ACH1283
C3382	CEAS101M25
C3383	CKCYB681K50

### RESISTORS

R3385	ACN-225
R3384	ACN1006
R3381, R3382	RS3LMF332J
Other Resistors	RD1/4PU□□□J

Mark	No.	Description	Part No.
<b>OTHERS</b>			
	J3381, J3382	LEAD WITH HOUSING	ADX2241
		CRT SOCKET	AKG1005
		HEAT SINK M3	ANH1409
	CN3381, CN3383, CN3384	PLUG 3-P	KM250MA3
		SCREW	PMB30P100FMC

## X B.CRT DRIVE ASSY

### SEMICONDUCTORS

Q3411	2SC4001
D3411	S5688G

### COILS

SG3411, SG3412	AEX-019
L3412	LAU101K
L3411, L3413	LAU470K

### CAPACITORS

C3414 (1000pF/DC2kV)	ACG1001
C3411	ACH1283
C3412	CEAS101M25
C3413	CKCYB681K50

### RESISTORS

R3415	ACN-225
R3414	ACN1006
R3411, R3412	RS3LMF332J
Other Resistors	RD1/4PU□□□J

### OTHERS

	CRT SOCKET	AKG1005
	HEAT SINK M3	ANH1409
CN3414	PLUG 3-P	KM250MA3
CN3411, CN3415	PLUG 3-P	KM250MA3B
CN3413	PLUG 5-P	KM250MA5B
	SCREW	PMB30P100FMC

## Y VM ASSY

### SEMICONDUCTORS

Q2818	2SA1162
Q2807, Q2810	2SA165
Q2811, Q2813	2SA185A
Q2806, Q2809	2SC1235
Q2812, Q2814	2SC1275A
Q2802-Q2805, Q2808, Q2815, Q2817	2SC1712
Q2801	2SC1878
Q2816	2SK108
D2801, D2804-D2806	1SS126
D2803	1SS152

D2802	RD7.5 MB
D2807-D2811	S5688G

### COILS

DL2801	ATNO 34
L2801	LCT1 00J3225

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Mark	No.	Description	Part No.
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## CAPACITORS

	C2801	CCSQL101J50
	C2830	CCSQCH270J50
	C2815, C2824	CEAS010M50
	C2808	CFTXA104J50
	C2817, C2826	CEHAQ010M50

	C2828, C2829	CEHAQ100M50
	C2806	CEHAQ221M10
	C2813, C2822	CEHAQ2R2M2A
	C2804	CEHAQ470M25
	C2809	CEHAQ220M2C

	C2810, C2819	CKDYF103Z500
	C2807	CKSQYB103K50
	C2805, C2814, C2816, C2823, C2825	CKSQYF103Z50
	C2802	CQMA104J50
	C2818, C2827	CQMA104K250
	C2811, C2812, C2820, C2821	CQMA333K250

## RESISTORS

	R2845, R2846	RD1/2PM100J
	R2835, R2836	RD1/2PM150J
	R2828	RD1/2PMFL331J
	R2821, R2825	RD1/4PM561J
	R2803	RD1/4PMFL4R7J

	R2834, R2844	RS1MMF222J
	R2822, R2823, R2826, R2827	RS1MMF2R2J
	R2837, R2838, R2847, R2848	RS1MMF470J
	R2831, R2832, R2841, R2842	RS1MMF473J
	R2850, R2877	RS3LMF181J

	R2849	RS3LMF331J
	Other Resistors	RS1/10S□□□□J

## OTHERS

	2805	CABLE HOLDER	AKT1011
		HEAT SINK M	ANH-697
	CN2804	15P SOCKET	KP2001A15L
	CN2802	5P SOCKET	KP2001A5L
	CN2803	7P SOCKET	KP2001A7L
		SCREW	PBZ30P080FMC

## POWER SUPPLY ASSY

### SEMICONDUCTORS

	IC101	AN8026
	IC201, IC301	NJM4558DXP
	IC102, IC103	PC817CD
	Q205, Q206, Q305, Q306	2SA1145
	Q106, Q107, Q113, Q114, Q116	2SA933S

	Q201	2SA933S
×	Q301, Q302	
	Q101, Q105, Q108, Q109	2SC1740S
	Q111, Q112, Q202, Q209, Q303	2SC1740S
	Q310	2SC1740S

	Q102, Q203, Q304	2SC2705
	Q204, Q307	2SC3332
	Q210	2SC4256(E)
	Q103, Q104, Q207	2SD1276A
△	Q308	2SD1276A

Mark	No.	Description	Part No.
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△	Q208, Q309	2SD2300(D)
	Q110	2SK1168(A)
	D106	11DF2FD
△	D215, D306	11DF2FD
	D162, D163	1SS145

	D145	BR3371XJ30A
	D101	D5SBA60(B)
	D308	ERA22-02
	D216, D218, D220, D221	ERB06-15
△	D307	ERB06-15

	D110, D125, D142	ERC90M-02
	D109	ERD29-06J
	D107, D116-D119, D121-D124	HSS104-02
	D126-D134, D143, D152, D153	HSS104-02
	D155, D201-D203, D206-D209	HSS104-02
	D211-D214, D217, D219	HSS104-02
	D303-D305, D311, D312	HSS104-02
	D113, D120	HZS18-1L
	D157	HZS24-3L

	D112, D115, D164	HZS6B1L
	D108	HZS6C2L
	D103, D135, D150, D154, D156	MTZJ20
	D151, D205, D210, D309, D310	RD12ESB
	D316, D317	RD12ESB

	D102	RD2.0ESB1
	D104, D105, D222	RD39ESB4
	D146-D149, D301	RD5.1ESB
×	D301	
	D302	RD5.1ESB1

	D144, D204	RD5.1ESB2
	D111	RD5.1ESB3
	D114	RL4Z(A)
	D158-D161	S5688G

## COILS

	L101, L102	ATF1118
	L103, L106, L107, L116, L118	ATH-059
△	L201	ATL1053
	L202	ATL1105
	L104, L105, L108-L115	ATX1021
	L203, L204	LTA152J
	L301	LTA272J

## TRANSFORMERS

	T101	ATK1106
	T102	ATT1272
△	T201	ATK1045
	T301	ATK1045
×	T302	

## RELAYS

	RY101, RY102	ASR1036
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## CAPACITORS

	C123, C124	ACE1107
	C117-C120	ACE1108
	C128 (100pF/DC2kV)	ACG-032
	C112-C115	ACG-501
	C222	ACG1001
	C156, C157, C158 (3300pF/DC2kV)	ACG1008
	C323	ACG1024
	C218, C220, C229, C230 (4700pF/DC2kV)	ACG1028



Mark	No.	Description	Part No.
△	C219, C319 (10 $\mu$ F/DC160V)	ACH1117	
	C125	ACH1146	
	C111	ACH1147	
	C110	ACH1148	
	C312, C317	CCCSL101J50	
	C214, C217, C314	CCCSL101K500	
	C226	CCCSL181K500	
	C129, C142, C144, C154	CCCSL221K500	
	C180	CEANP010M50	
	C233	CEANP4R7M100	
	C213	CEHAQ010M2A	
	C304, C321, C327	CEHAQ100M50	
	C204	CEHAQ221M16	
	C211	CEHAQ330M35	
	C147, C148	CEHAQ470M25	
	C122, C132, C202, C216, C231, C306	CEHAQ010M50	
	C210, C310	CEHAQ100M2C	
	C133, C134, C145, C146, C149, C201, C206	CEHAQ100M50	
	C160	CEHAQ101M25	
	C109	CEHAQ101M35	
	C322	CEHAQ220M2C	
	C313, C325	CEHAQ220M50	
	C305, C309	CEHAQ221M10	
	C135, C302	CEHAQ221M25	
	C141	CEHAQ222M35	
	C143	CEHAQ222M50	
	C164	CEHAQ331M25	
	C138, C166	CEHAQ331M35	
	C155	CEHAQ332M25	
	C163	CEHAQ102M25	
	C136, C137	CEHAQ332M35	
	C151	CEHAQ470M25	
	C318	CEHAQ4R7M50	
	C324	CFPA123J1200	
	C228	CFPA273J1000	
△	C224	CFPA333J1000	
	C225	CFPMA564J2E	
	C107	CFTXA104J50	
	C227	CFTXA333J50	
	C221	CFTXA105J50	
	C320	CKCYB102K50	
	C215	CKCYB102K500	
	C301	CKCYB222K50	
	C209	CKCYB331K500	
	C316	CKCYB392K500	
	C308	CKCYB561K50	
	C131	CKCYB681K50	
	C161, C162, C165, C212	CKCYF103Z50	
	C307, C311	CKCYF103Z50	
	C315	CKCYF222Z500	
	C130, C139, C140, C205, C303	CKCYF473Z50	
	C326	CKCYF473Z50	
	C126, C127	CKDYF103Z500	
	C208	CQMA102J50	
	C121	CQMA103J50	
	C150	CQMA104J50	
	C106	CQMA222J50	
	C203	CQMA223J50	
	C105	CQMA272J50	

Mark	No.	Description	Part No.
	C104, C207	CQMA471J50	
	C152	CQMA473J50	
	C116	CQMA681J50	
	C232	CQMA682J50	
	C223	CQPA683J200	
<b>RESISTORS</b>			
	R144, R165	ACN-208	
	R349	ACN-225	
	R252	ACN1011	
	R121, R157, R158	ACN1032	
	R329, R346	RD1/2PM122J	
	R253, R328	RD1/2PM152J	
	R327	RD1/2PM332J	
×	R337	RD1/2PM821J	
	R321	RD1/2PMFL100J	
	R182		
	R242	RD1/2PMFL103J	
	R104, R176, R250	RD1/2PMFL220J	
	R215	RD1/2PMFL223J	
	R236	RD1/2PMFL470J	
	R336	RD1/2PMFL472J	
	R234	RD1/2PMFL473J	
	R307	RD1/4PM821J	
△	R344	RD1/4PMFL2R2J	
	R164	RD1/4PMFL331J	
	R232	RD1/4PMFL392J	
	R210, R219, R243	RD1/4PMFL3R9J	
△	R302, R314	RD1/4PMFL3R9J	
	R223, R320	RD1/4PMFL470J	
	R235, R338	RD1/4PMFL471J	
	R112	RD1/4PMFL681J	
△	R347	RN1/2PC3902F	
△	R348	RN1/2PC4302F	
×	R340		
	R118, R119	RN1/4PC1603F	
	R128	RN1/4PC2101F	
	R127	RN1/4PC2431F	
	R120	RN1/4PC3601F	
	R240	RS1LMFO10J	
△	R326	RS1LRF221J	
	R155	RS1LRF391J	
	R147, R148	RS3LH123J	
	R113	RS1LRF473J	
	R105-R107, R114	RS1LFR22J	
△	R351	RS1LFR22J	
	R116	RS2LRF223J	
	R255	RS3LRF682J	
	R229	RS3LRF562J	
	R228	RS3LRF010J	
	R245, R248	RS3LRF104J	
△	R343	RS3LRF151J	
	R257	RS3LRF153J	
	R185	RS3LRF2R2J	
△	R358	RS3LRF822J	
	R156	RS3LRF332J	
△	R341	RS3LRF47J	
△	R331	RS3LRF68J	
	R145, R146	RT10Z150K	
×	R304		

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Mark	No.	Description	Part No.
×	R305		
×	R308		
×	R312		
×	R315		
×	R317		
×	R318		
×	R342		
×	VR301		
×	VR302		
	VR101		VRTS6VS102
	VR201		VRTS6HS471
	Other Resistors		RD1/4PU□□□J

## OTHERS

	SG201		AEX-019
		SCREW	ABA1228
		RIVET	AEC-441
△	FU101	FUSE (8A)	AEK1002
		MICA SHEET	AEP-056
△	CN201	PLUG 3P	AKM1055
△	CN202-CN204	PLUG 4P	AKM1066
	CN101	PLUG 2P	AKM1130
	H101-H104		AKR1003
		BINDER	AEP-215
		HEAT SINK B	ANH1021
		HEAT SINK	ANH1371
		SW HEAT SINK	ANH1505
		SCREW	BBZ30P080FCU
		SCREW	BBZ30P080FZK
	CN106	15P PLUG	KM200IA15
	CN103	5P PLUG	KM200IA5
	CN107	7P PLUG	KM200IA7
	CN301	PLUG 7P	KM250MA7
		SCREW	PBZ30P080FMC
		SCREW	PBZ30P100FMC
		SCREW	VPZ40P100FMC

## AA MAIN SW ASSY

### SWITCH

S3441	ASG1006
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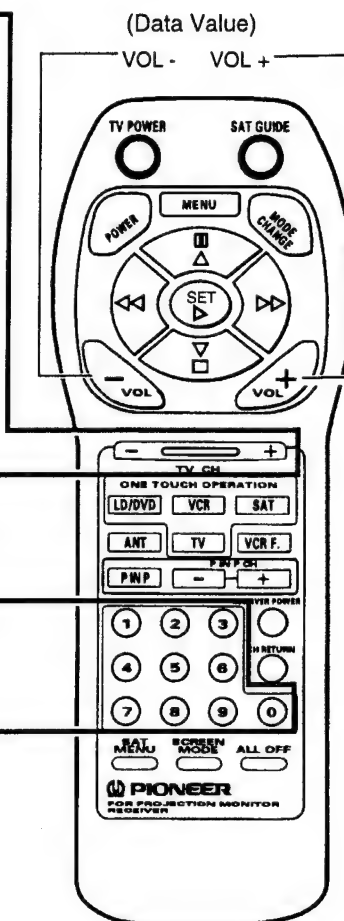
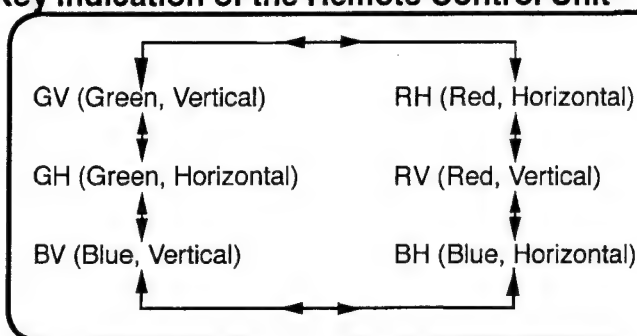
### OTHERS

CN3441	PLUG 3-P	KM250MA3R
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## 6. ADJUSTMENT

### ■ Key Indication of the Remote Control Unit



## • Adjustment Items

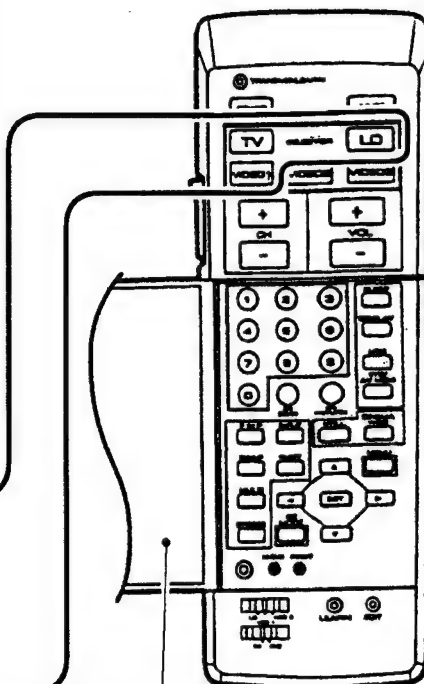
ADJUSTMENT		Adjustment Name	NU MERIC KEYS	ADJUSTMENT ITEMS	TYPE						
RANGE	OFFSET				GH	GV	RH	RV	BH	BV	
	○	CUT-R	①	STATIC	○	○	○	○	○	○	
○		VOL0	①	SKEW	○	○	○	○	○	○	
○		Color	①	BOW	○	○	○	○	○	○	
○		TINT	②	4TH BOW	○	○	○	○	○	○	
○	○	Contrast	③	SUB KEY	○	○	○	○	○	○	
○	○	Bright	④	KEY	○	○	○	○	○	○	
○	○	Sharpness	⑤	MID KEY	○	○	○	○	○	○	
○	○			SUB PIN	○	○	○	○	○	○	○
○	○			MS. PIN	○	○	○	○	○	○	○
○	○			4S PIN	○	○	○	○	○	○	○
○	○	Detail	⑥	SC PIN	○	○	○	○	○	○	
○	○			PIN	○	○	○	○	○	○	○
○	○			MID PIN	○	○	○	○	○	○	○
○	○	VOL20	⑦	4TH PIN	○	○	○	○	○	○	
○	○	VOL30	⑧	LIN	○	○	○	○	○	○	
○	○	DRV-G	⑧	4TH LIN	○	○	○	○	○	○	
○	○	VOL40	⑨	SIZE	○	○	○	○	○	○	
○	○	DRV-B	⑨	SUB LIN	○	○	○	○	○	○	

VR : Adjust GH, GV with semifixed VR

OFFSET → CH+ : CUT-G  
CONVER → CH- : CUT-B


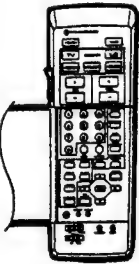


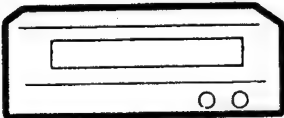
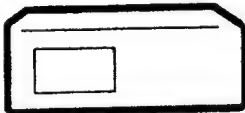

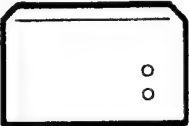
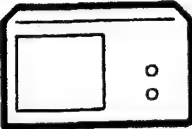
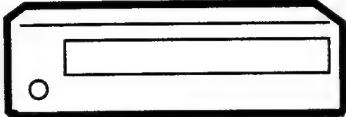
(To output red, green and blue separately)

TV : To output red ON/OFF  
LD : To output green ON/OFF  
Video1 : To output blue ON/OFF



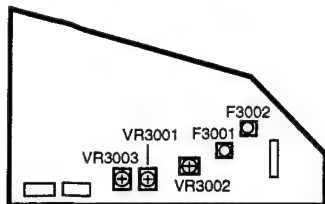
(The upper cover is opened)

■ Jigs and Measuring Instruments

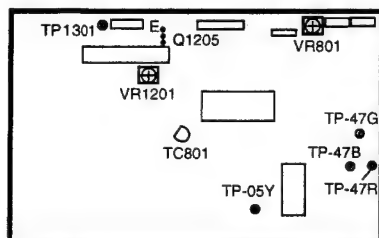
		
Remote control unit (CU-SD100)	Remote control unit AXD1352 (CU-SD076)	⊖ Screwdriver
		
⊖ Adjustment screwdriver	Color bar generator	D.D.C. Volt meter
		
LD player	Monoscope	Dual trace oscilloscope
		
Frequency counter		

## Assembly Adjustment Location and Items

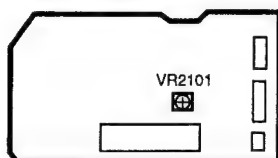
### (A) P IN P ASSY



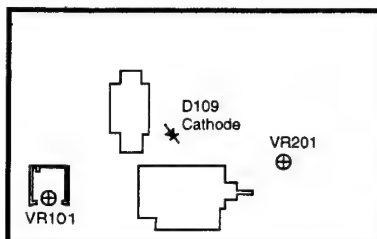
### (B) TUNER • VIDEO ASSY



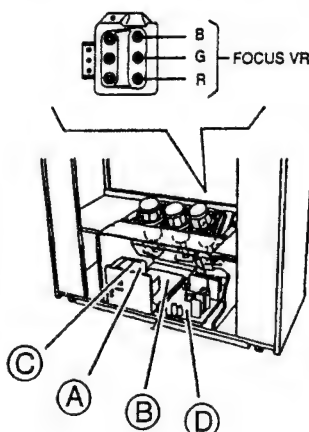
### (C) ISC ASSY



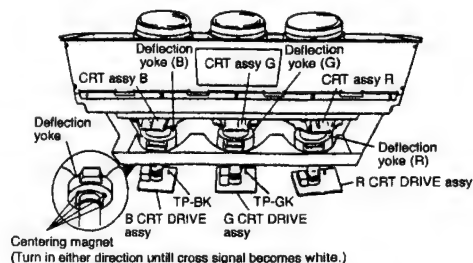
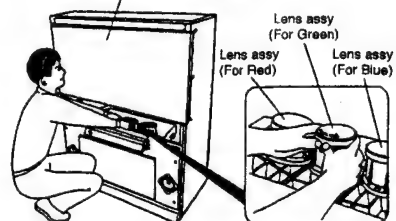
### (D) POWER SUPPLY ASSY



#### FOCUS VR (VR1)



Translucent paper such as tracing paper



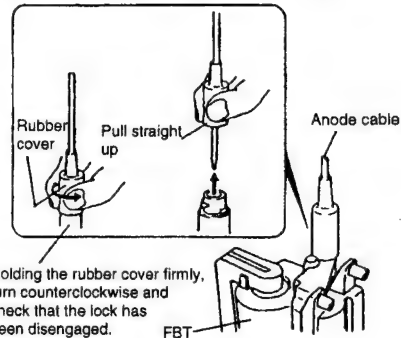
#### MEASURING METHOD

Disconnect the FBT anode cable as shown below. Measure at the point where the cable enters the FBT.

Caution: Take extra precaution when measuring the voltage. High voltage are also present in surrounding circuit boards. (CRT DRIVE assy, POWER SUPPLY assy).

#### SERVICEMAN WARNING

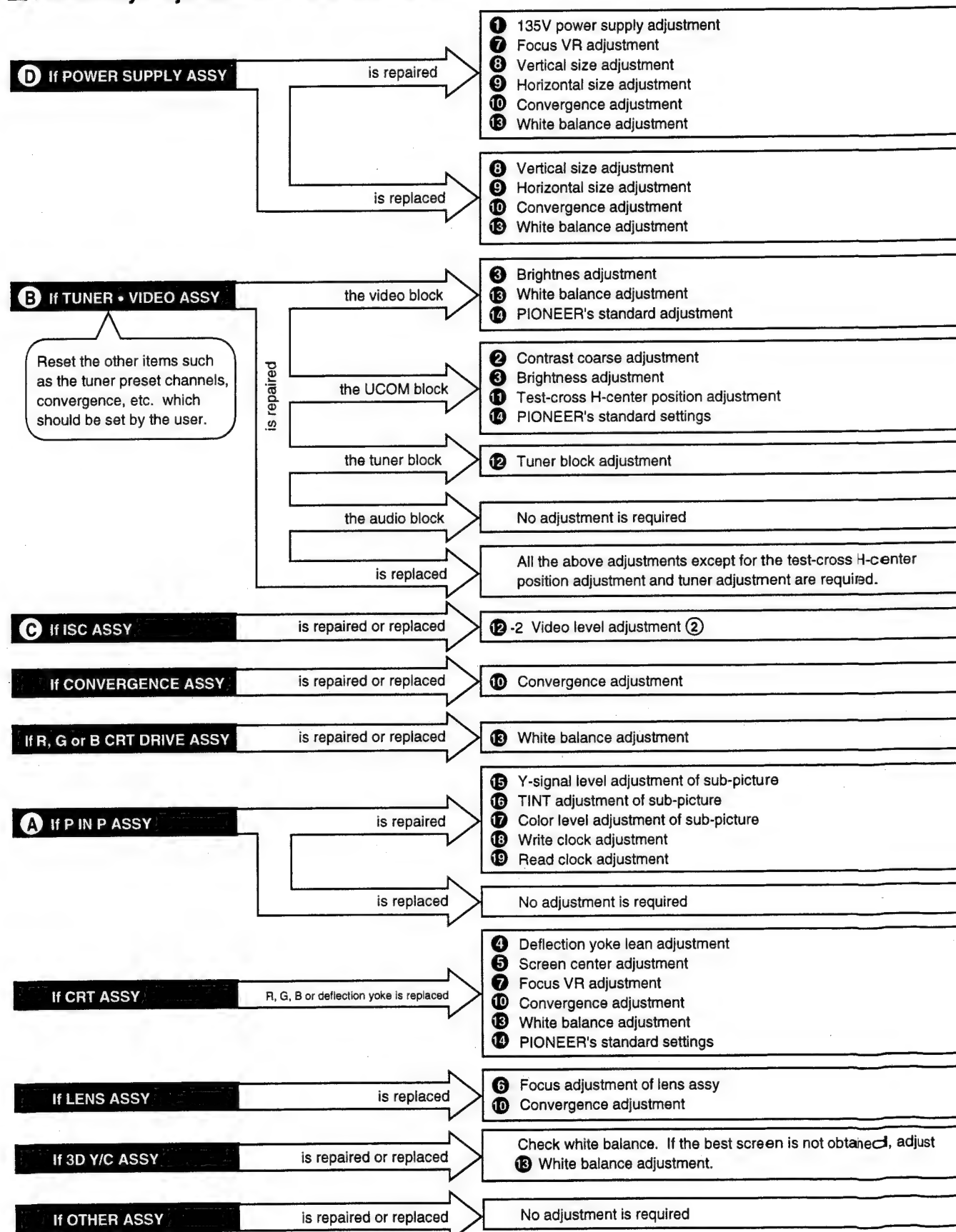
Before removing the anode cable, turn off the power, unplug the AC plug and let the unit discharge for more than 1 minute.



Note:  
When reconnecting the cable, proceed in the reverse order. After reconnecting, tug on the cable to check that it is secure.

- 1 135V Power supply adjustment
- 2 Contrast coarse adjustment
- 3 Brightness adjustment (PIONEER's standard settings)
- 4 Deflection yoke lean adjustment
- 5 Screen center adjustment
- 6 Focus adjustment of lens assy
- 7 Focus VR adjustment
- 8 Vertical size adjustment
- 9 Horizontal size adjustment
- 10 Convergence adjustment
- 11 Test cross H-Center position assy
- 12 Tuner block adjustment
- 13 White balance adjustment
- 14 PIONEER's standard settings
- 15 Y-signal level adjustment of sub-picture (adjustment for P IN P)
- 16 Tint adjustment of sub-picture (adjustment for P IN P)
- 17 Color level adjustment of sub-picture (adjustment for P IN P)
- 18 Write clock adjustment of sub-picture (adjustment for P IN P)
- 19 Read clock adjustment of sub-picture (adjustment for P IN P)

## Assembly Adjustment Location Guide





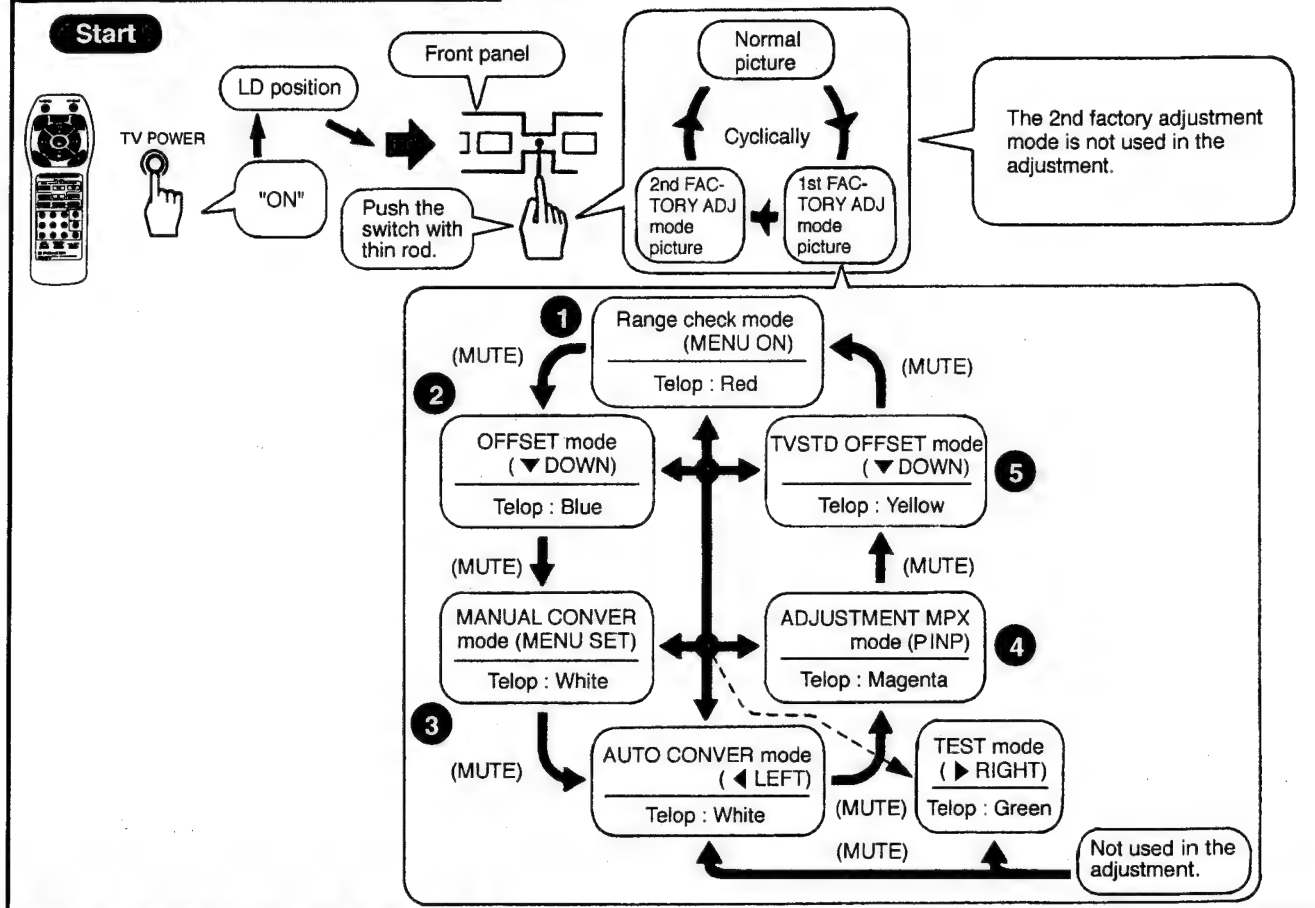
# ■ Factory ADJ Mode

**Start** ..... Start adjusting

**1st FAC** ..... Select 1st factory adjustment mode, then adjust.

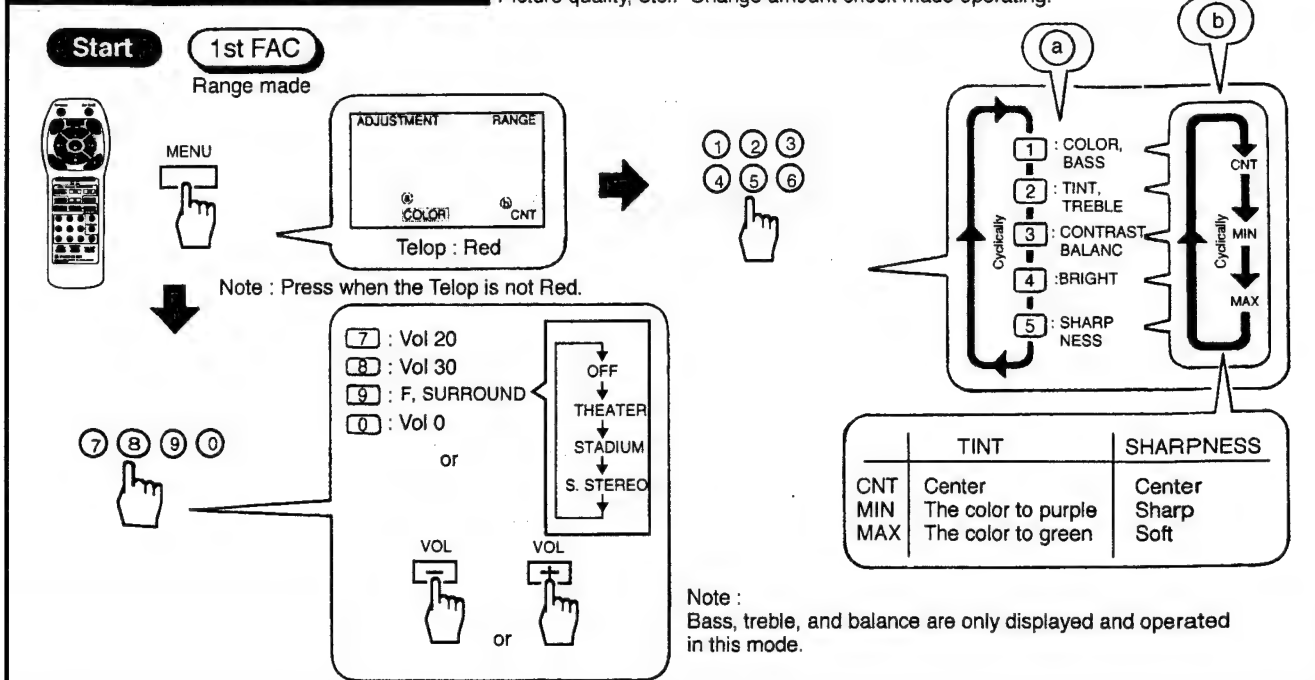
## Select 1st FACTORY ADJ Mode

Selecting the mode for adjustment operations.



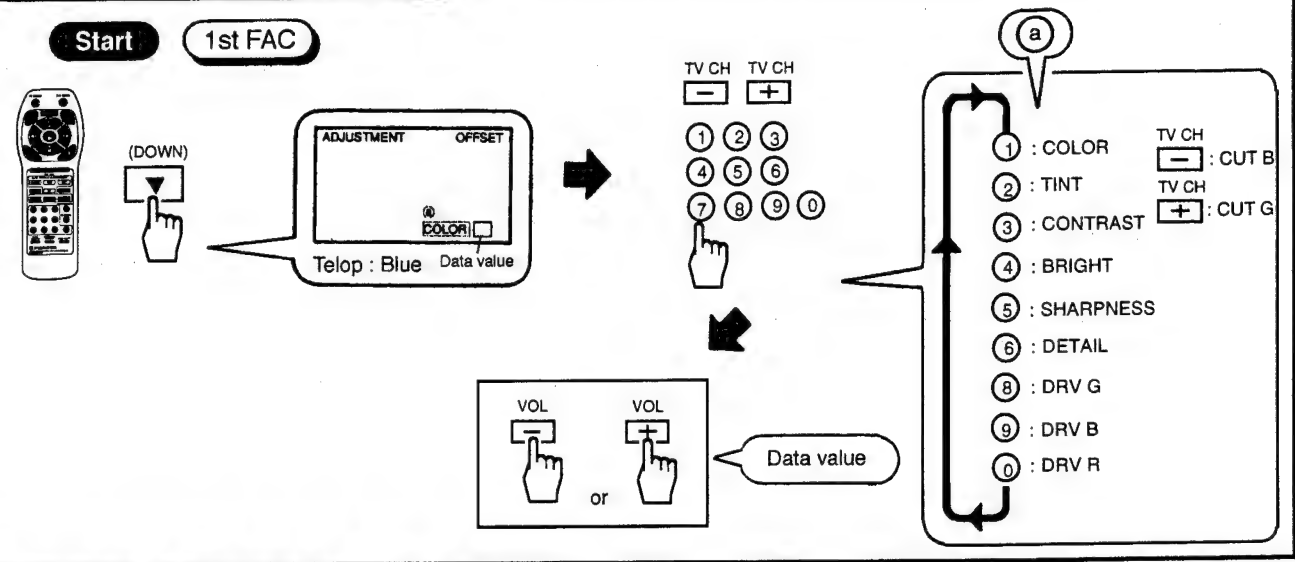
## 1 Adjustment Range Mode

Picture quality, etc.. Change amount check made operating.

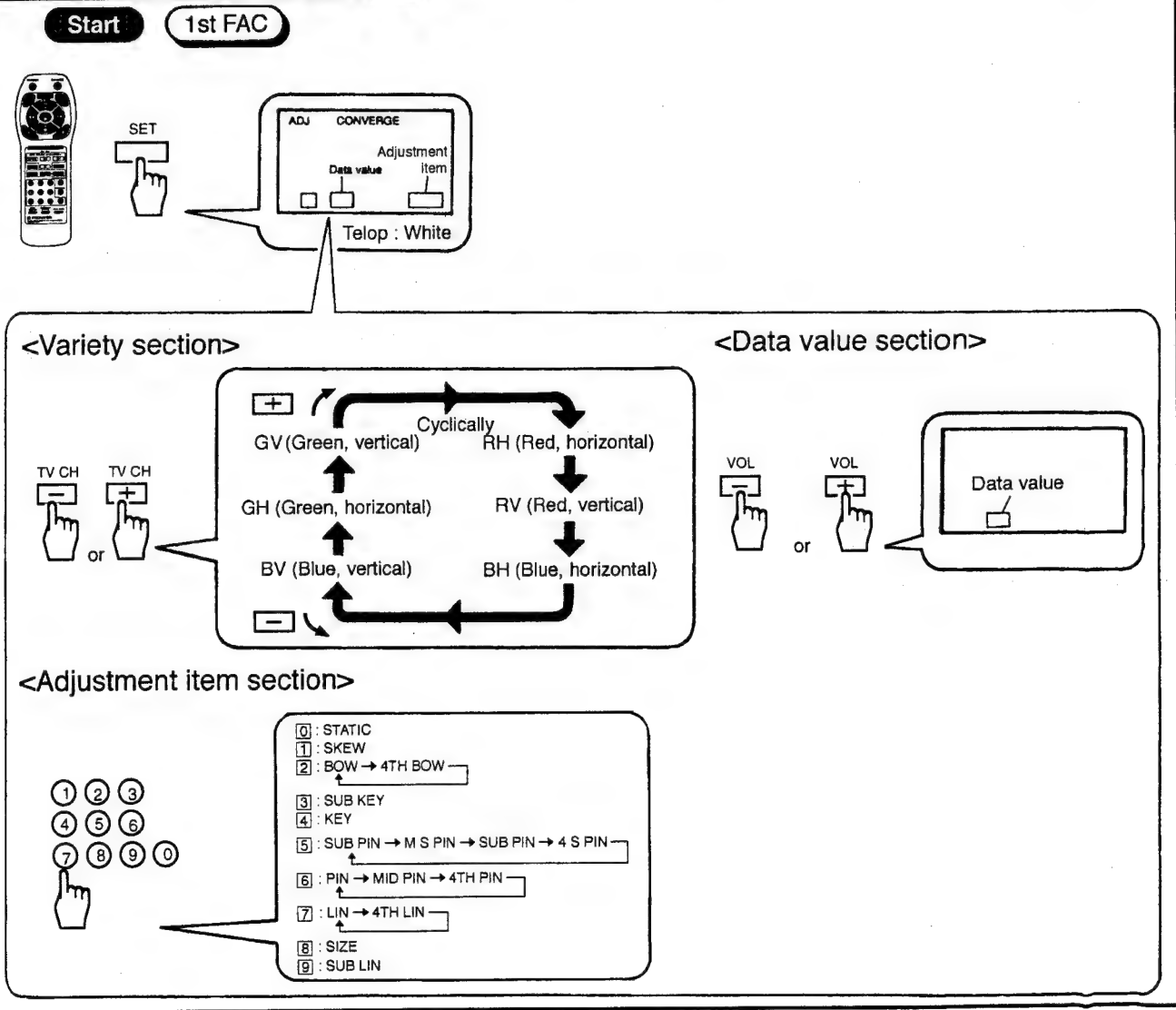


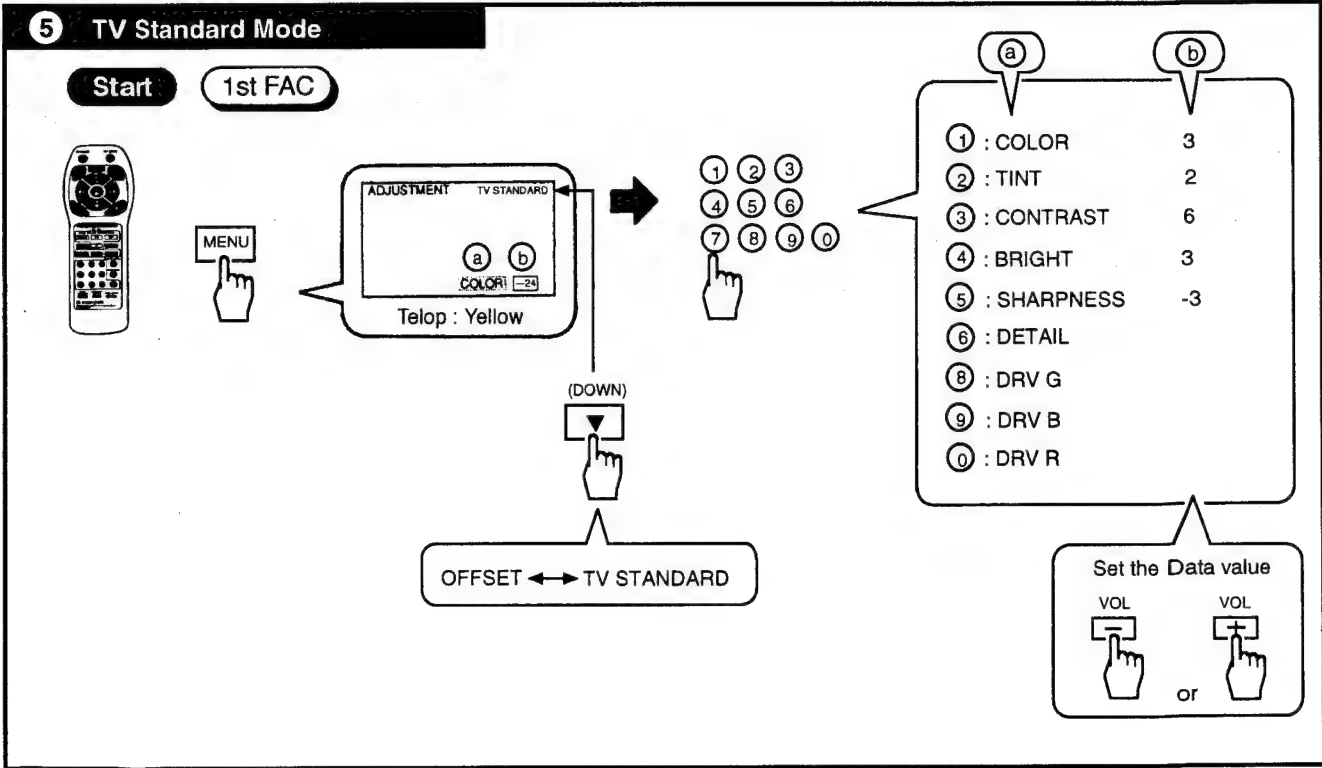
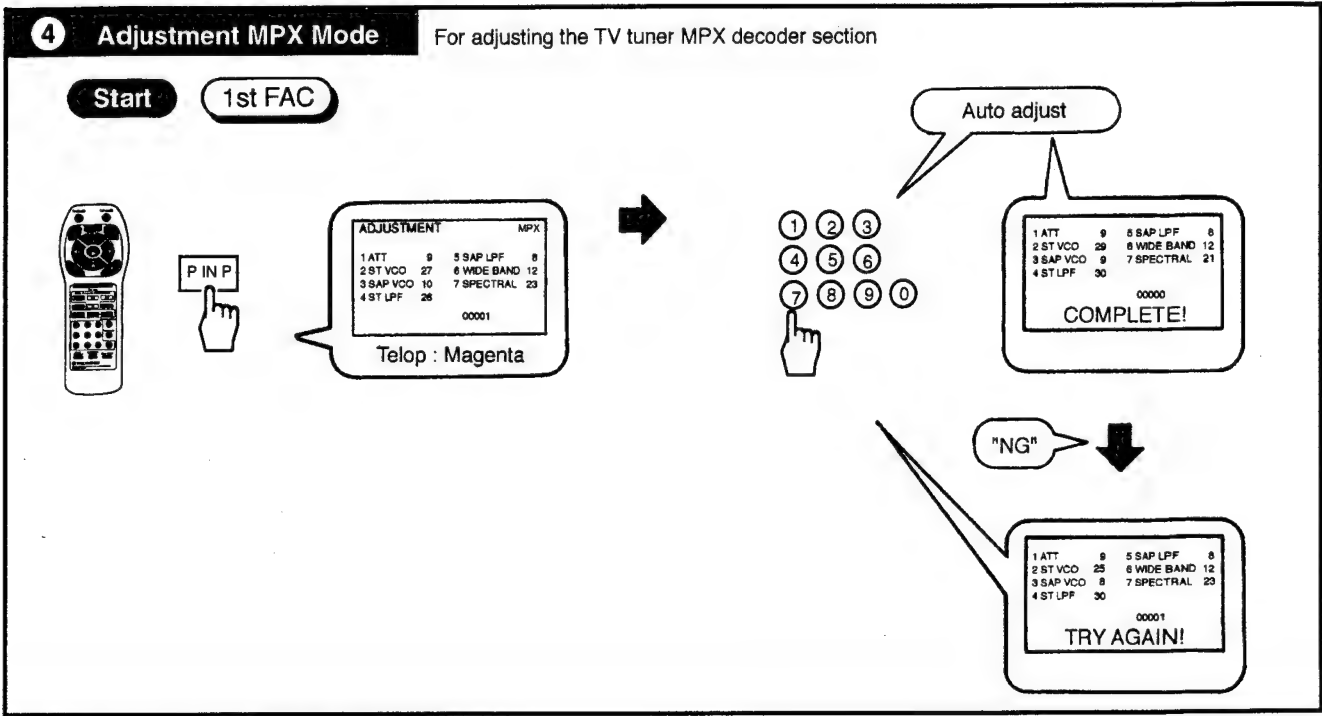
## 2 Adjustment OFFSET Mode

This mode is to set the standard picture quality for a normal picture.



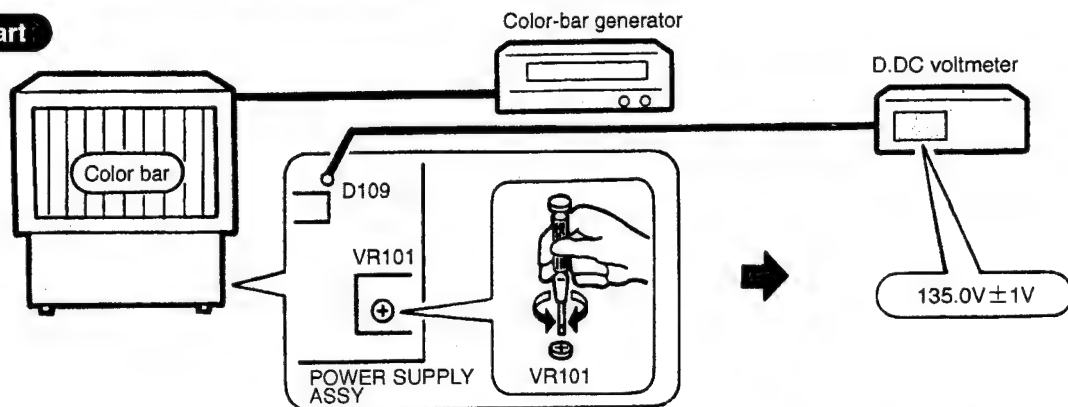
## 3 Convergence Setting Mode





# 1 135V Power supply adjustment

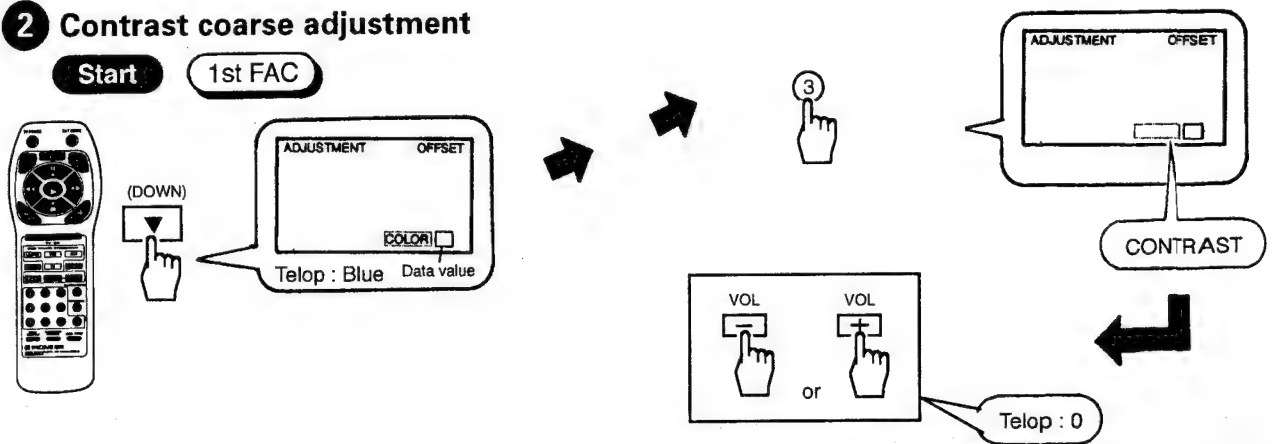
Start



# 2 Contrast coarse adjustment

Start

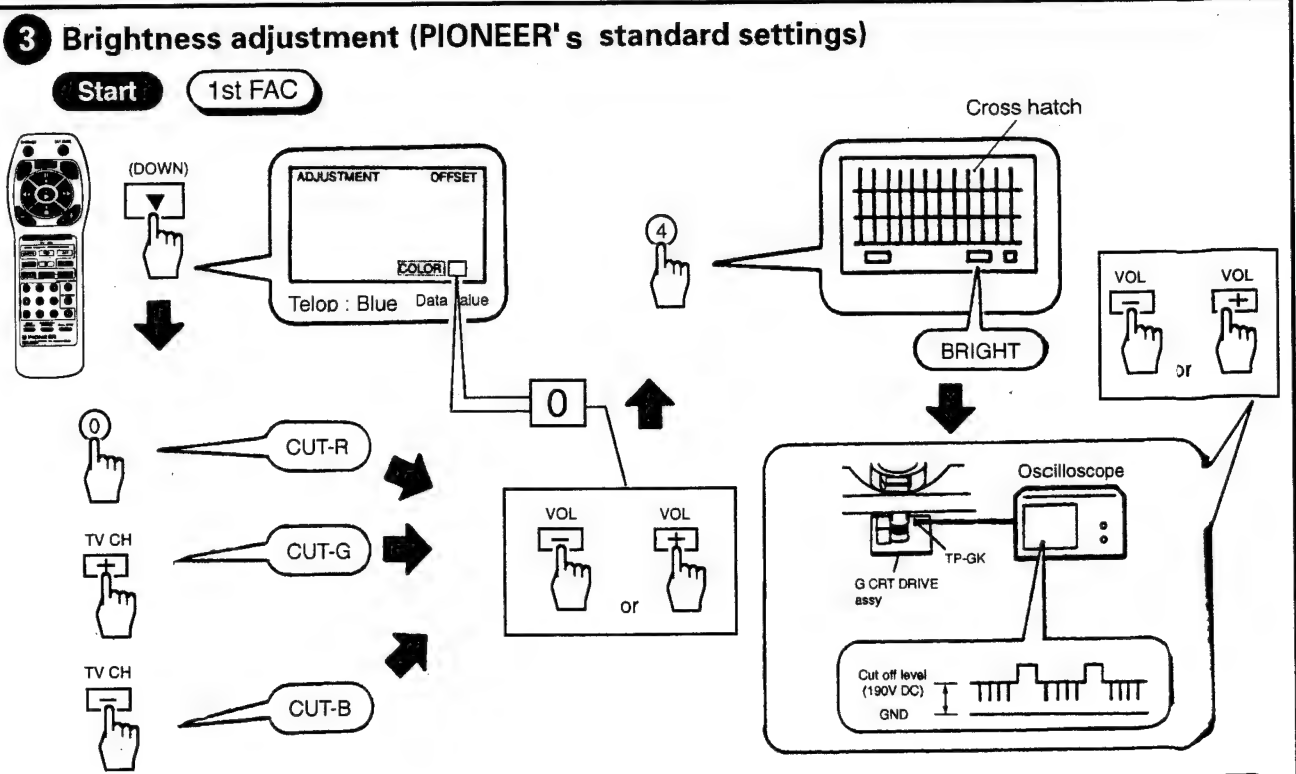
1st FAC



# 3 Brightness adjustment (PIONEER's standard settings)

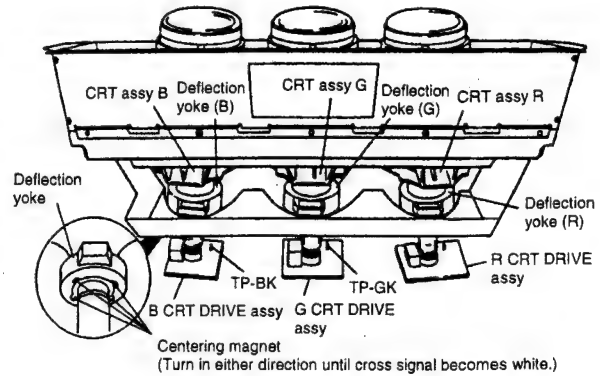
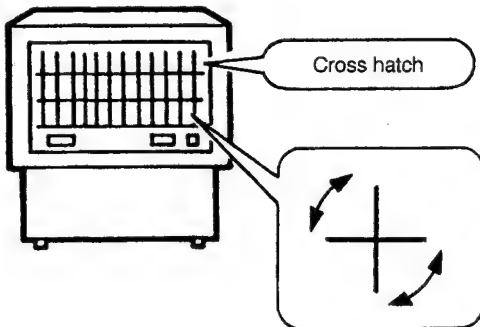
Start

1st FAC



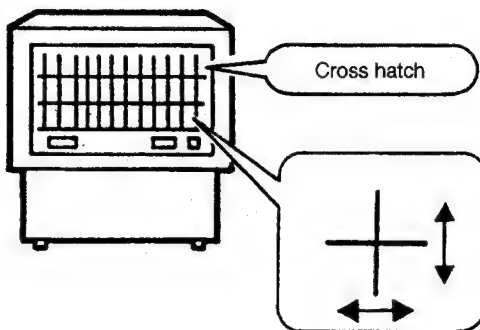
#### 4 Deflection yoke lean adjustment

Start



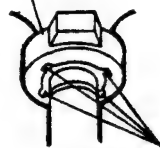
#### 5 Screen center adjustment

Start



- For Red or Blue adjustment, turn 1st FACTORY ADJ mode ON and then OFF to place the convergence POSITION at the center of the adjustable range.
- Move the centering magnet of the deflection yoke for the replaced color so that the horizontal and vertical lines at the center of the screen align with the lines for a color not replaced.

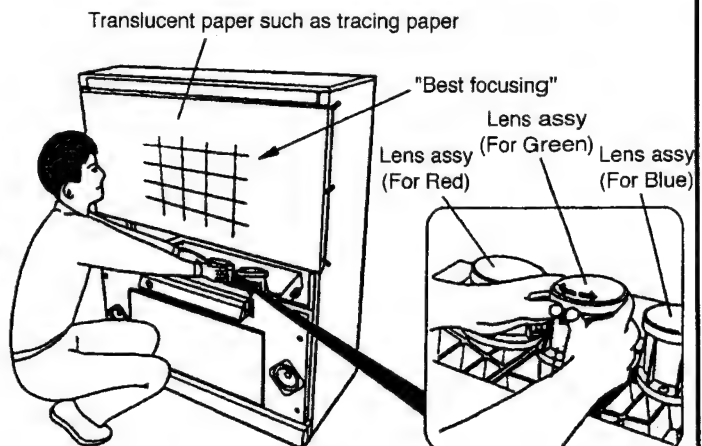
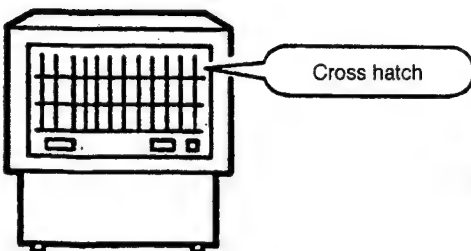
Deflection yoke



(Turn in either direction until cross signal becomes white.)

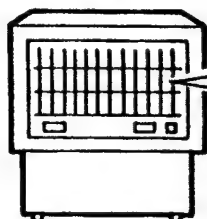
#### 6 Focus adjustment of lens assy

Start



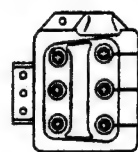
## 7 Focus VR adjustment

Start



Cross hatch

### FOCUS VR (VR1)

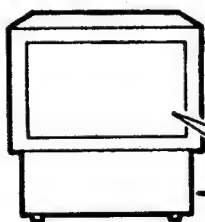


FOCUS VR

Turn the focus VR for best focusing.

## 8 Vertical size adjustment

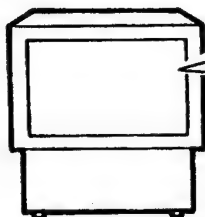
Start



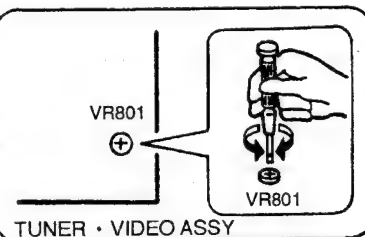
LD or VIDEO1

$90\% \pm 3\%$

or



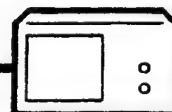
General  
broadcasting



VR801

TUNER + VIDEO ASSY

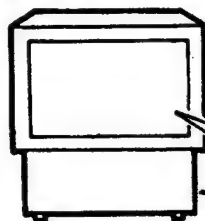
(Mono scope)



Adjust the size so that the picture is completely displayed on the screen.

## 9 Horizontal size adjustment

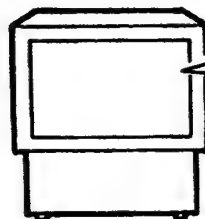
Start



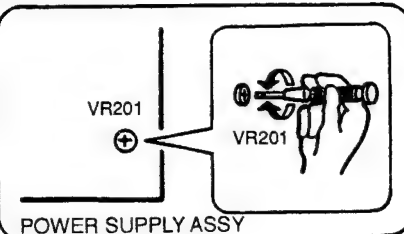
LD or VIDEO1

$93\% \pm 2\%$

or



General  
broadcasting



VR201

POWER SUPPLY ASSY

(Mono scope)



Adjust the size so that the picture is completely displayed on the screen.

## 10 Convergence adjustment

### 10-1 Green line adjustment 1st FAC

- Adjustment in the horizontal direction

#### Start

- See ③ Convergence Setting Mode in the Factory ADJ mode.
- Input cross-hatch signals to this device's video input terminal.

#### Note :

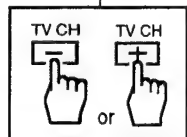
The convergence for this device must be adjusted for each screen size normal cinema and full cinema.

- Use the remote control unit CU-SD076 for servicing.

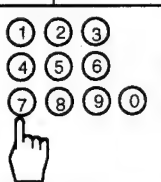
LD  
↓  
TV → VIDEO1  
Green only

- Select the Adjustment item

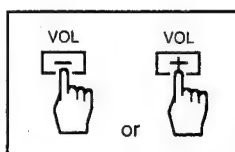
#### GH - STATIC



In particular, be aware of the setting before adjustment.



- Adjust the Data value

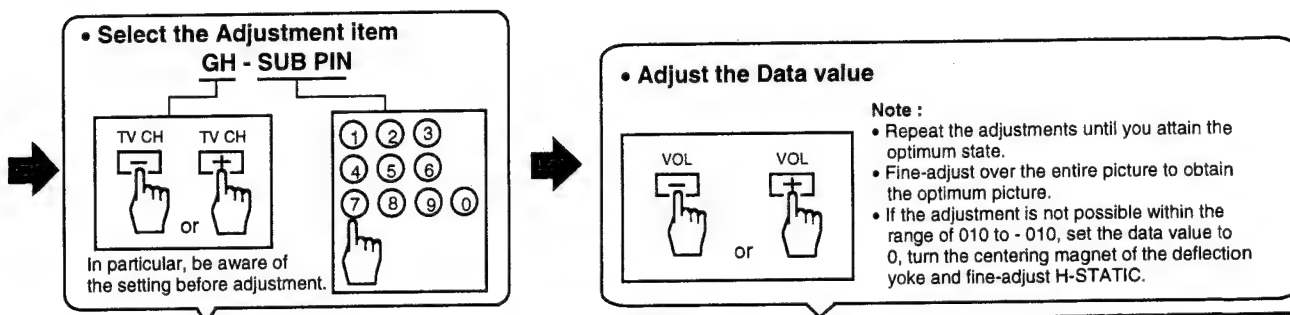



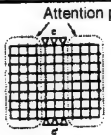





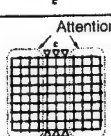


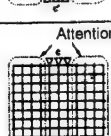


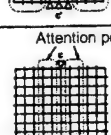


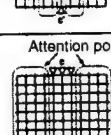


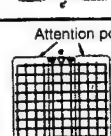


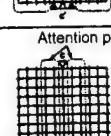


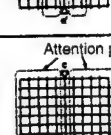


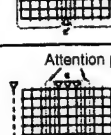

#### Note :

- Repeat the adjustments until you attain the optimum state.
- Fine-adjust over the entire picture to obtain the optimum picture.
- If the adjustment is not possible within the range of 010 to -010, set the data value to 0, turn the centering magnet of the deflection yoke and fine-adjust H-STATIC.

Adjustment Item	Cross-hatch Picture			Adjustment Point
	Deviated	Optimum	Deviated	
Center-line Adjustment	GH - STATIC			Move the center vertical line at the center of the screen.
	GH - SKEW			Adjust so that the center vertical line is not leaned.
	GH - BOW			Adjust so that the bowed center vertical line at the center of the screen to a straight line.
	GH - 4TH BOW			Adjust so that the wavy center vertical line at the center of the screen to a straight line.
Lean Adjustment	GH - SUB KEY			Adjust so that the vertical lines in the right and left sections of the screen are not leaned.
	GH - KEY			





Adjustment Item		Cross-hatch Picture			Adjustment Point
		Deviated	Optimum	Deviated	
Distortion Adjustment	GH - SUB PIN				Adjust so that the vertical lines in the right and left sections of the screen are not distorted and are straight.
	GH - MS PIN				
	GH - 4S PIN				
	GH - PIN				
	GH - MID PIN				
	GH - 4TH PIN				
Line-interval Adjustment	GH - LIN				Adjust so that the intervals of the vertical lines in the right and left sections of the screen are symmetrically and correct the size
	GH - 4TH LIN				
	GH - SIDE				
	GH - SUB LIN				

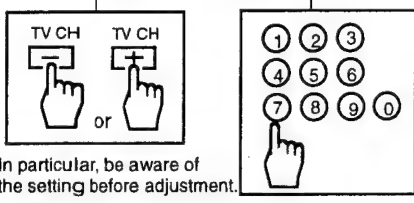
# 10-2 Green line adjustment 1st FAC

- Adjustment in the vertical direction

Start

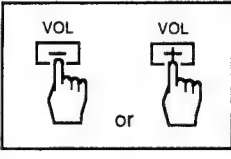
• Select the Adjustment item

**GV - STATIC**



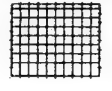
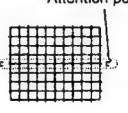


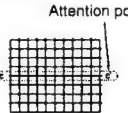


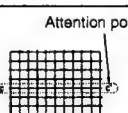


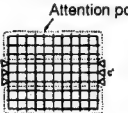
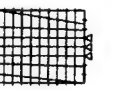

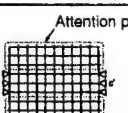


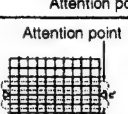

In particular, be aware of the setting before adjustment.

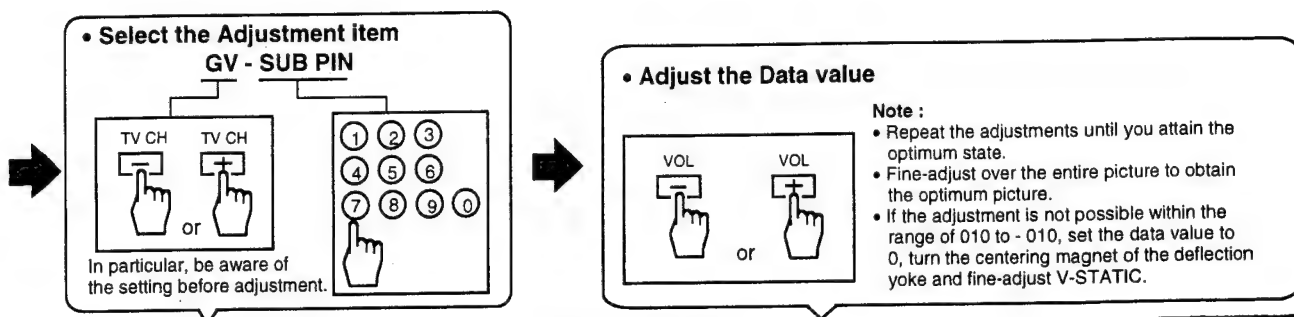
• Adjust the Data value

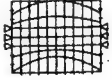
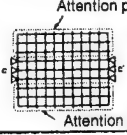
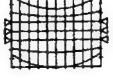
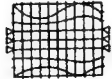
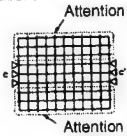
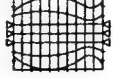

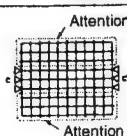
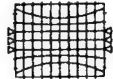

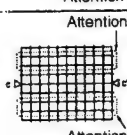


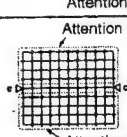

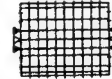
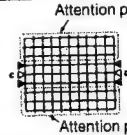
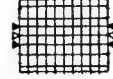

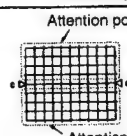

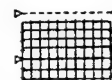
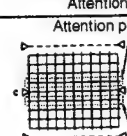
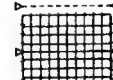


**Note :**

- Repeat the adjustments until you attain the optimum state.
- Fine-adjust over the entire picture to obtain the optimum picture.
- If the adjustment is not possible within the range of 010 to -010, set the data value to 0, turn the centering magnet of the deflection yoke and fine-adjust V-STATIC.

Adjustment Item		Cross-hatch Picture			Adjustment Point
		Deviated	Optimum	Deviated	
Center-line Adjustment	GV - STATIC				Move the center horizontal line at the center of the screen.
	GV - SKEW				Adjust so that the center horizontal line is not leaned.
	GV - BOW				Adjust so that the bowed center horizontal line at the center of the screen to a straight line.
Lean Adjustment	GV - SUB KEY				Adjust so that the horizontal lines in the upper and lower sections of the screen are not leaned.
	GV - KEY				
	GV - MID KEY				



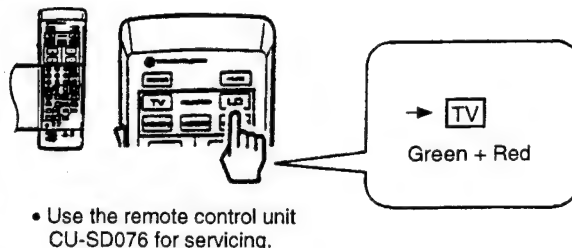
Adjustment Item		Cross-hatch Picture			Adjustment Point
		Deviated	Optimum	Deviated	
Distortion Adjustment	GV - SUB PIN				Adjust so that the horizontal lines in the upper and lower sections of the screen are not distorted and are straight.
	GV - SC PIN				
	GV - PIN				
	GV - MID PIN				
	GV - 4TH PIN				
Line-interval Adjustment	GV - LIN				Adjust so that the intervals of the horizontal lines in the upper and lower sections of the screen are symmetrically and correct the size.
	GV - SIZE				
	GV - SUB LIN				

# 10 -3 Red line adjustment 1st FAC

- Adjustment in the horizontal direction

## Start

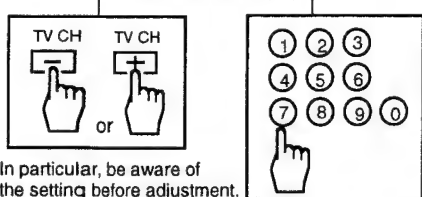
- See ③ Convergence Setting Mode in the Factory ADJ mode.
- Input cross-hatch signals to this device's video input terminal.



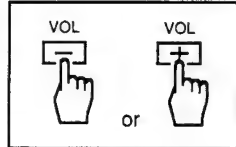
- Use the remote control unit CU-SD076 for servicing.

## Select the Adjustment Item

### RH - STATIC



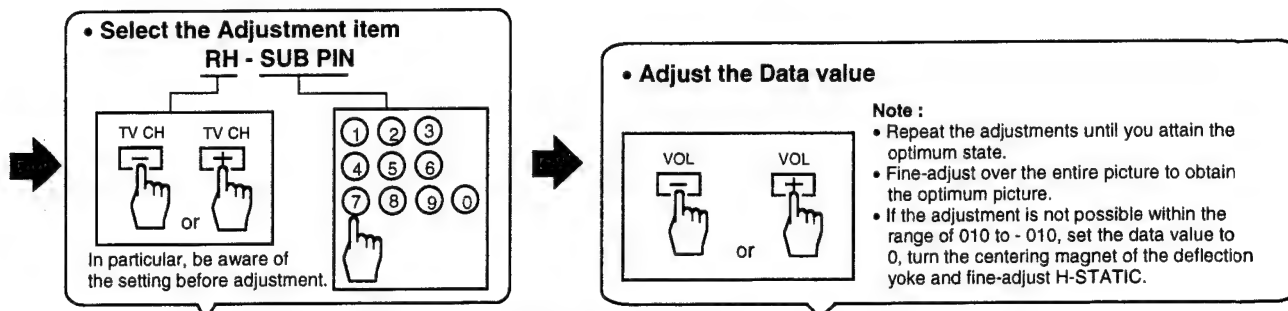
## Adjust the Data value


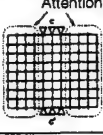


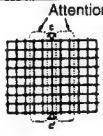


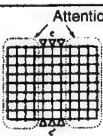


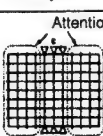


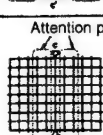


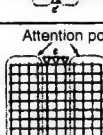


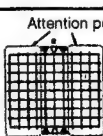


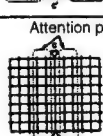


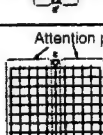


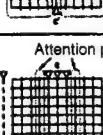



### Note :

- Repeat the adjustments until you attain the optimum state.
- Fine-adjust over the entire picture to obtain the optimum picture.
- If the adjustment is not possible within the range of 010 to - 010, set the data value to 0, turn the centering magnet of the deflection yoke and fine-adjust H-STATIC.

Adjustment Item		Cross-hatch Picture			Adjustment Point
		Deviated	Optimum	Deviated	
Center-line Adjustment	RH - STATIC				Converge the center vertical line in the green vertical line.
	RH - SKEW				Adjust so that the center vertical line is not leaned.
	RH - BOW				Adjust so that the bowed center vertical line at the center of the screen to a straight line.
	RH - 4TH BOW				Adjust so that the wavy center vertical line at the center of the screen to a straight line.
Lean Adjustment	RH - SUB KEY				Adjust so that the vertical lines in the right and left sections of the screen are not leaned.
	RH - KEY				



Adjustment Item		Cross-hatch Picture			Adjustment Point
		Deviated	Optimum	Deviated	
Distortion Adjustment	<b>RH - SUB PIN</b>				Adjust so that the vertical lines in the right and left sections of the screen are not distorted and are straight.
	<b>RH - MS PIN</b>				
	<b>RH - 4S PIN</b>				
	<b>RH - PIN</b>				
	<b>RH - MID PIN</b>				
	<b>RH - 4TH PIN</b>				
Line-Interval Adjustment	<b>RH - LIN</b>				Adjust so that the intervals of the vertical lines in the right and left sections of the screen are symmetrically and converge them in the green vertical lines.
	<b>RH - 4TH LIN</b>				
	<b>RH - SIDE</b>				
	<b>RH - SUB LIN</b>				

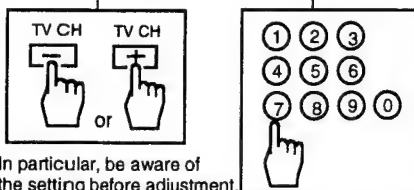
# 10 -4 Red line adjustment 1st FAC

- Adjustment in the vertical direction

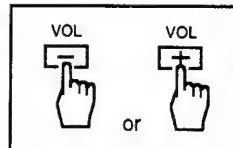
Start

- Select the Adjustment item

RV - STATIC



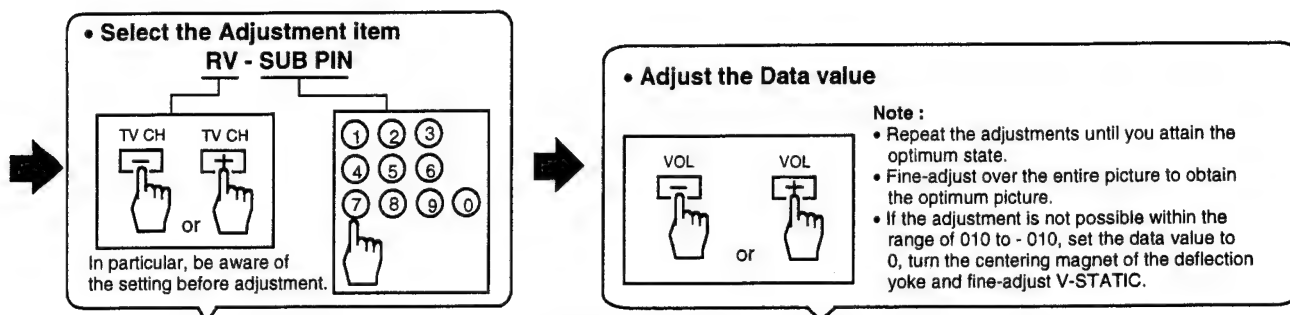
- Adjust the Data value

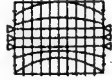
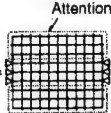
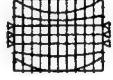
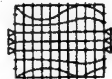
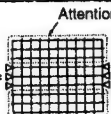
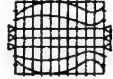

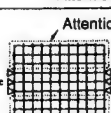
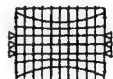

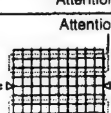

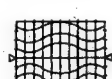
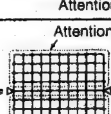

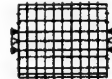
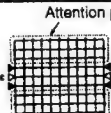
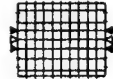

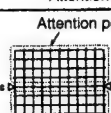


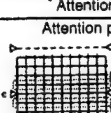
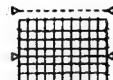


Note :

- Repeat the adjustments until you attain the optimum state.
- Fine-adjust over the entire picture to obtain the optimum picture.
- If the adjustment is not possible within the range of 010 to -010, set the data value to 0, turn the centering magnet of the deflection yoke and fine-adjust V-STATIC.

Adjustment Item		Cross-hatch Picture			Adjustment Point
		Deviated	Optimum	Deviated	
Center-line Adjustment	RV - STATIC				Converge the center horizontal line in the green horizontal line.
	RV - SKEW				Adjust so that the center horizontal line is not leaned.
	RV - BOW				Adjust so that the bowed center horizontal line at the center of the screen to a straight line.
Lean Adjustment	RV - SUB KEY				Adjust so that the horizontal lines in the upper and lower sections of the screen are not leaned.
	RV - KEY				
	RV - MID KEY				



Adjustment Item		Cross-hatch Picture			Adjustment Point
		Deviated	Optimum	Deviated	
Distortion Adjustment	<b>RV - SUB PIN</b>				Adjust so that the horizontal lines in the upper and lower sections of the screen are not distorted and are straight.
	<b>RV - SC PIN</b>				
	<b>RV - PIN</b>				
	<b>RV - MID PIN</b>				
	<b>RV - 4TH PIN</b>				
Line-interval Adjustment	<b>RV - LIN</b>				Adjust so that the intervals of the horizontal lines in the upper and lower sections of the screen are symmetrically and converge them in the green horizontal lines.
	<b>RV - SIZE</b>				
	<b>RV - SUB LIN</b>				

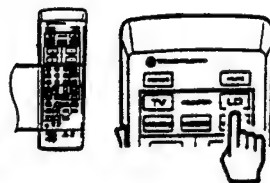


# 10 -5 Blue line adjustment 1st FAC

- Adjustment in the horizontal direction

## Start

- See ③ Convergence Setting Mode in the Factory ADJ mode.
- Input cross-hatch signals to this device's video input terminal.

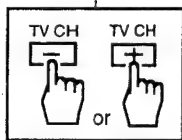


To output  
Green + Red + Blue

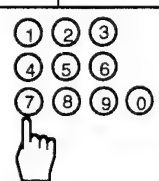
- Use the remote control unit CU-SD076 for servicing.

- Select the Adjustment item

### BH - STATIC

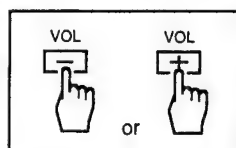


or



In particular, be aware of  
the setting before adjustment.

- Adjust the Data value

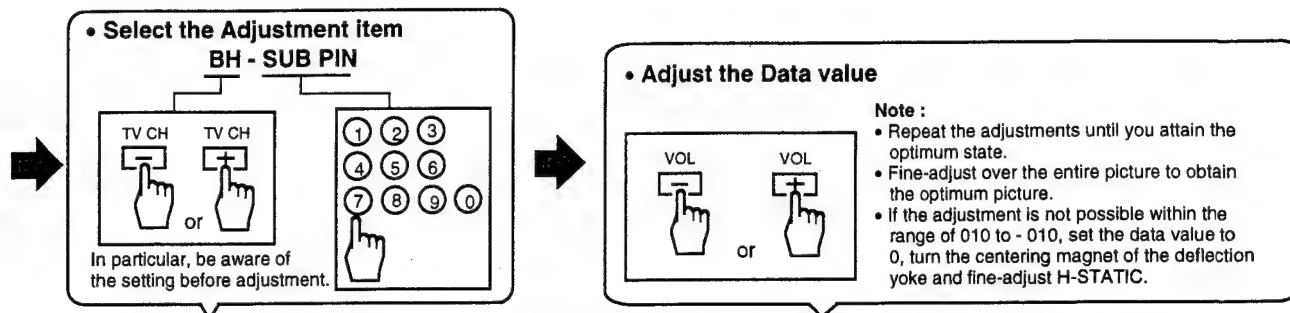



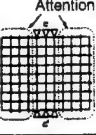





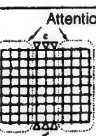


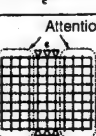


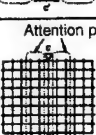


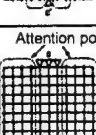


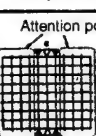





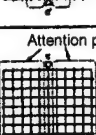


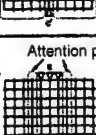

or

### Note :

- Repeat the adjustments until you attain the optimum state.
- Fine-adjust over the entire picture to obtain the optimum picture.
- If the adjustment is not possible within the range of 010 to - 010, set the data value to 0, turn the centering magnet of the deflection yoke and fine-adjust H-STATIC.

Adjustment Item	Cross-hatch Picture			Adjustment Point
	Deviated	Optimum	Deviated	
Center-line Adjustment	<div> <div>BH - STATIC</div> <div>BH - SKEW</div> <div>BH - BOW</div> <div>BH - 4TH BOW</div> </div>			<div> Converge the center vertical line in the green vertical line. </div>
	<div> <div>BH - SUB KEY</div> <div>BH - KEY</div> </div>			<div> Adjust so that the vertical lines in the right and left sections of the screen are not leaned. </div>
	<div> <div>BH - SUB KEY</div> <div>BH - KEY</div> </div>			<div> Adjust so that the vertical lines in the right and left sections of the screen are not leaned. </div>
	<div> <div>BH - SUB KEY</div> <div>BH - KEY</div> </div>			<div> Adjust so that the vertical lines in the right and left sections of the screen are not leaned. </div>



Adjustment Item		Cross-hatch Picture			Adjustment Point
		Deviated	Optimum	Deviated	
Distortion Adjustment	BH - SUB PIN				Adjust so that the vertical lines in the right and left sections of the screen are not distorted and are straight.
	BH - MS PIN				
	BH - 4S PIN				
	BH - PIN				
	BH - MID PIN				
	BH - 4TH PIN				
Line-interval Adjustment	BH - LIN				Adjust so that the intervals of the vertical lines in the right and left sections of the screen are symmetrically and converge them in the green vertical lines.
	BH - 4TH LIN				
	BH - SIDE				
	BH - SUB LIN				

**10 -6 Blue line adjustment** **1st FAC**

- Adjustment in the vertical direction

**Start**

• **Select the Adjustment item**

**BV - STATIC**

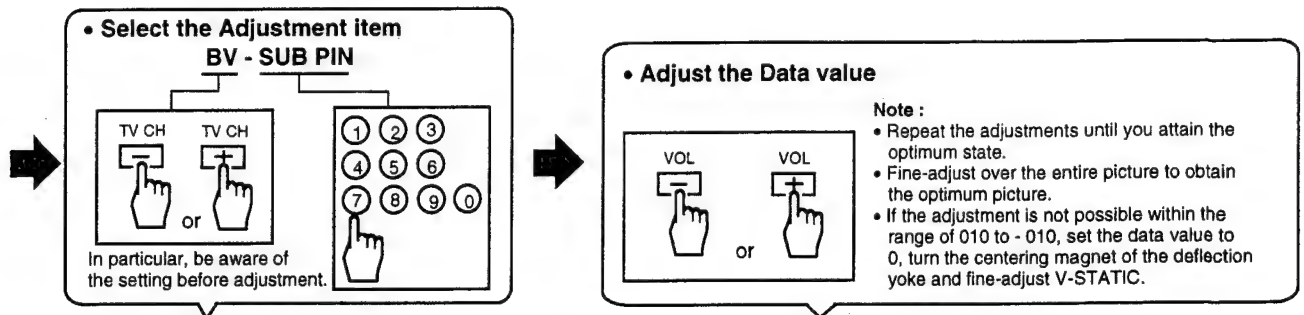
In particular, be aware of the setting before adjustment.

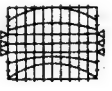
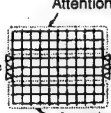
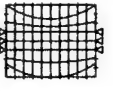
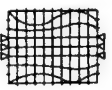
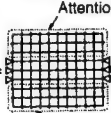
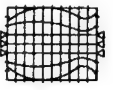

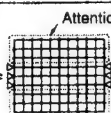
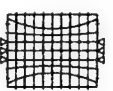
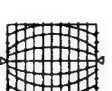
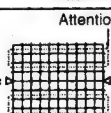


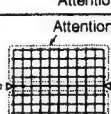


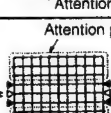


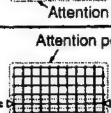


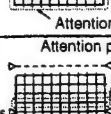

• **Adjust the Data value**

**Note :**

- Repeat the adjustments until you attain the optimum state.
- Fine-adjust over the entire picture to obtain the optimum picture.
- If the adjustment is not possible within the range of 010 to - 010, set the data value to 0, turn the centering magnet of the deflection yoke and fine-adjust V-STATIC.

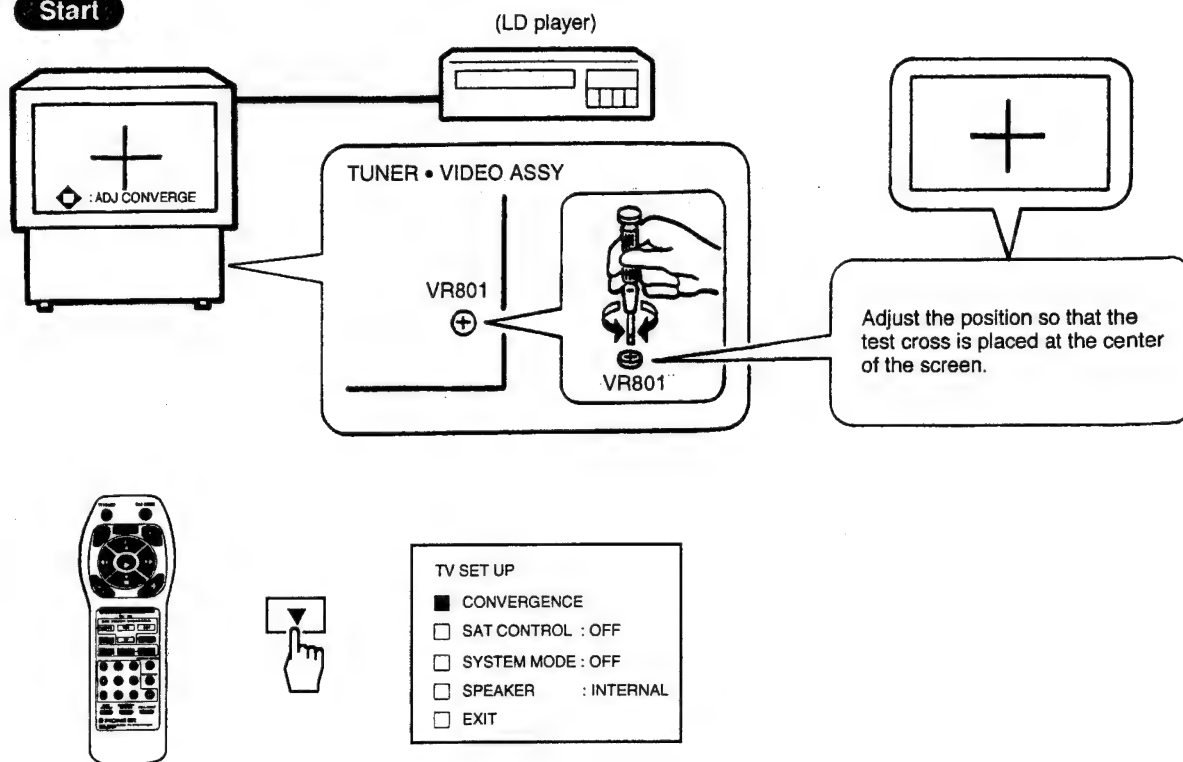
Adjustment Item		Cross-hatch Picture			Adjustment Point
		Deviated	Optimum	Deviated	
Center-line Adjustment	<b>BV - STATIC</b>				Converge the center horizontal line in the green horizontal line.
	<b>BV - SKEW</b>				Adjust so that the center horizontal line is not leaned.
	<b>BV - BOW</b>				Adjust so that the bowed center horizontal line at the center of the screen to a straight line.
Lean Adjustment	<b>BV- SUB KEY</b>				Adjust so that the horizontal lines in the upper and lower sections of the screen are not leaned.
	<b>BV - KEY</b>				
	<b>BV - MID KEY</b>				



Adjustment Item		Cross-hatch Picture			Adjustment Point
		Deviated	Optimum	Deviated	
Distortion Adjustment	<b>BV - SUB PIN</b>				Adjust so that the horizontal lines in the upper and lower sections of the screen are not distorted and are straight.
	<b>BV - SC PIN</b>				
	<b>BV - PIN</b>				
	<b>BV - MID PIN</b>				
	<b>BV - 4TH PIN</b>				
Line-Interval Adjustment	<b>BV - LIN</b>				Adjust so that the intervals of the horizontal lines in the upper and lower sections of the screen are symmetrically and converge them in the green horizontal lines.
	<b>BV - SIZE</b>				
	<b>BV - SUB LIN</b>				

## 11 Test cross H-center position adjustment

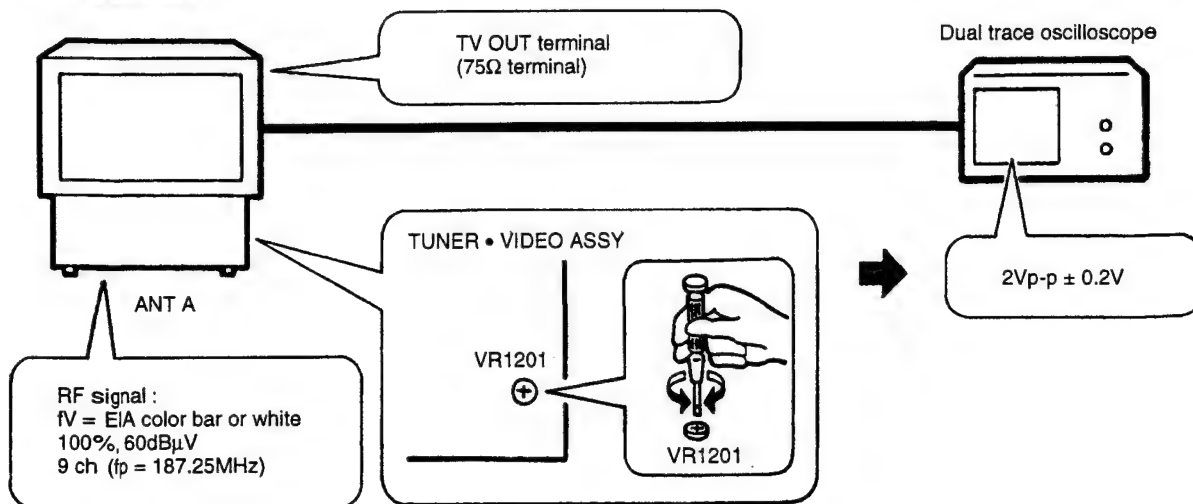
Start



## 12 Tuner block adjustment

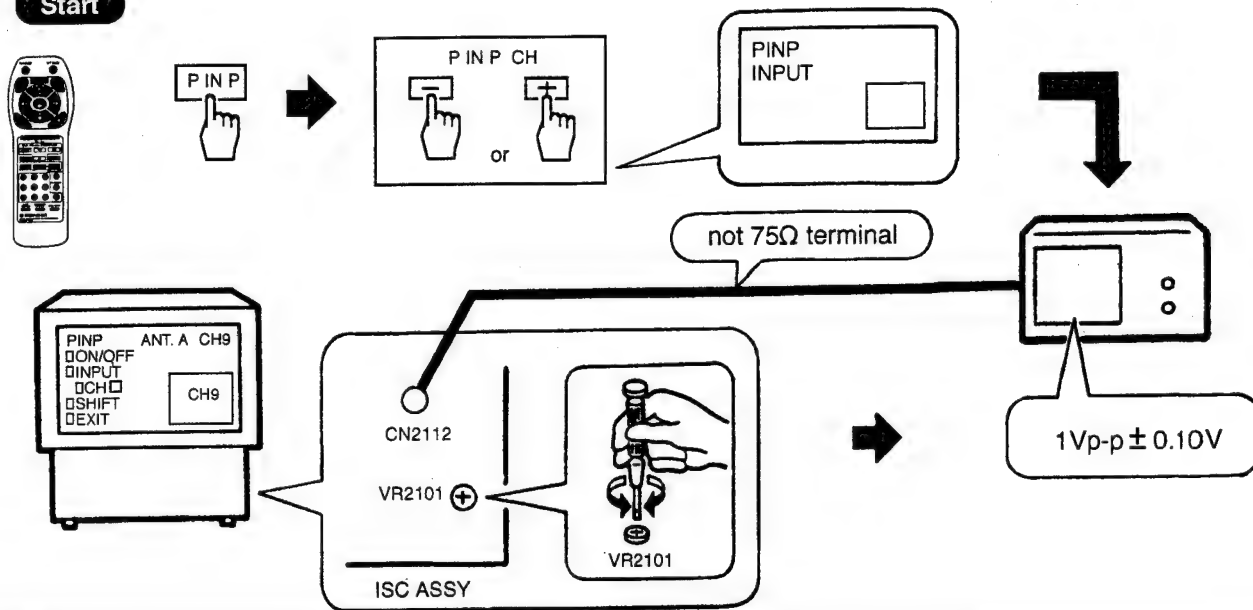
### 12 -1 Video level adjustment ①

Start



## 12-2 Video level adjustment ②

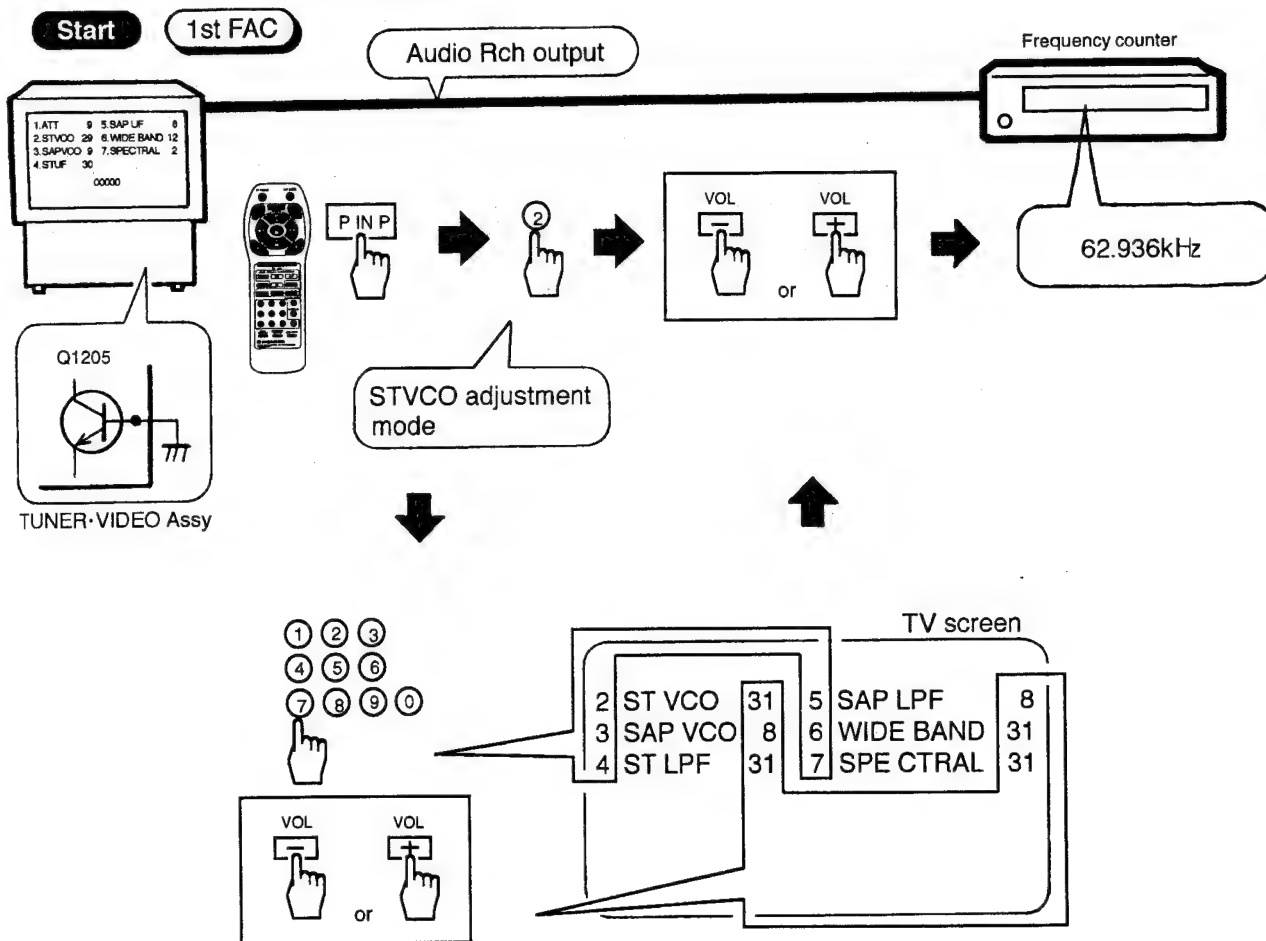
Start



## 12-3 Stereo VCO adjustment

Start

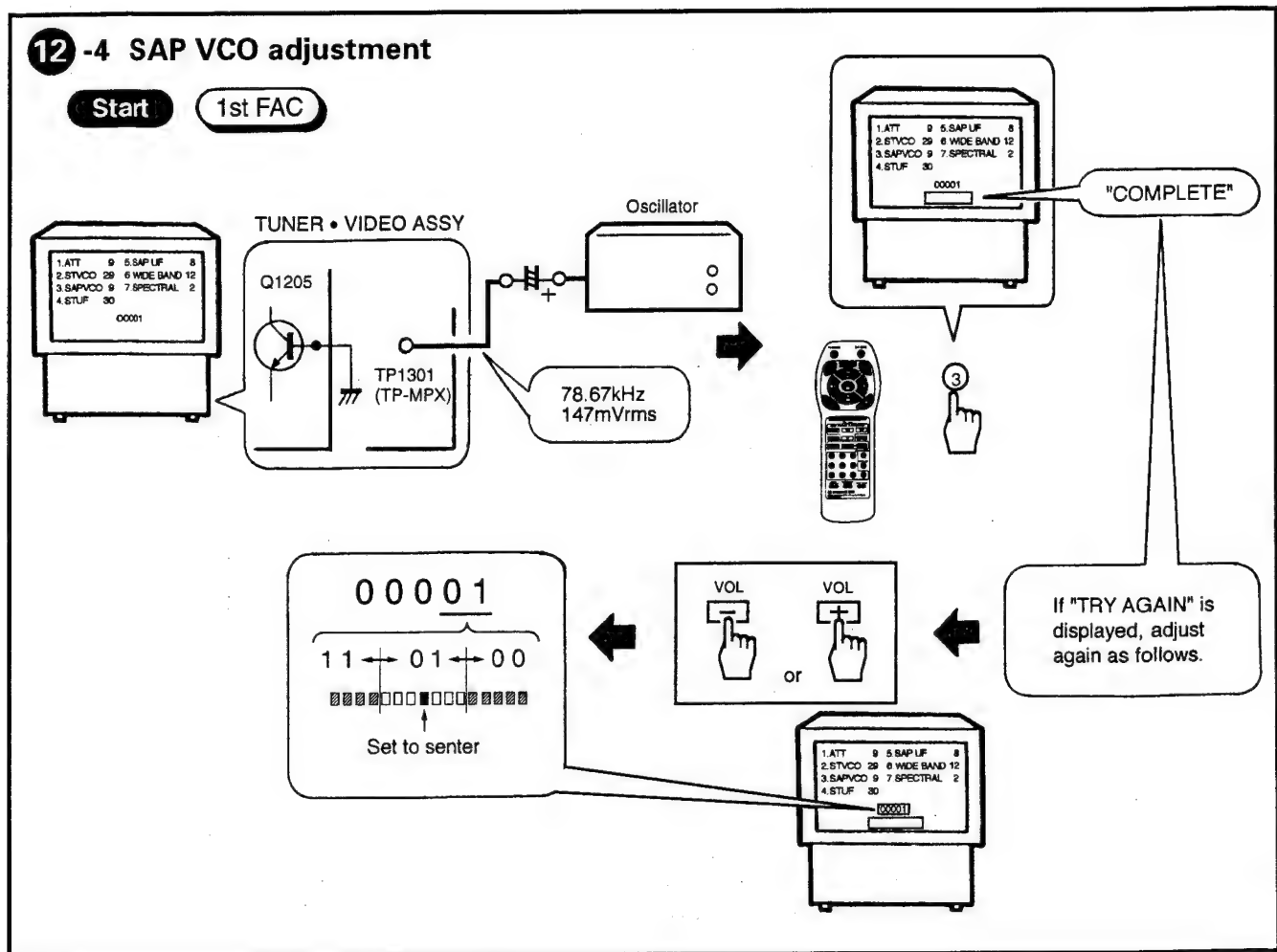
1st FAC



## 12 -4 SAP VCO adjustment

Start

1st FAC

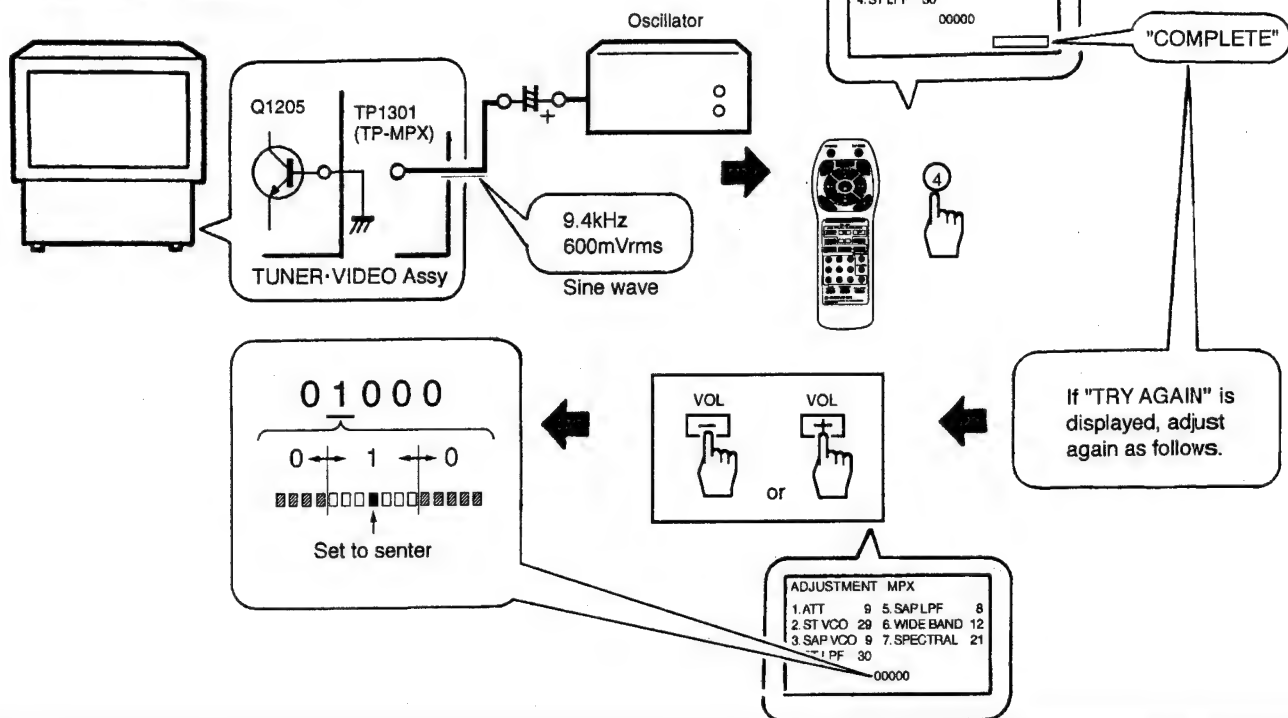




## 12 - 5 STEREO LPF adjustment

Start

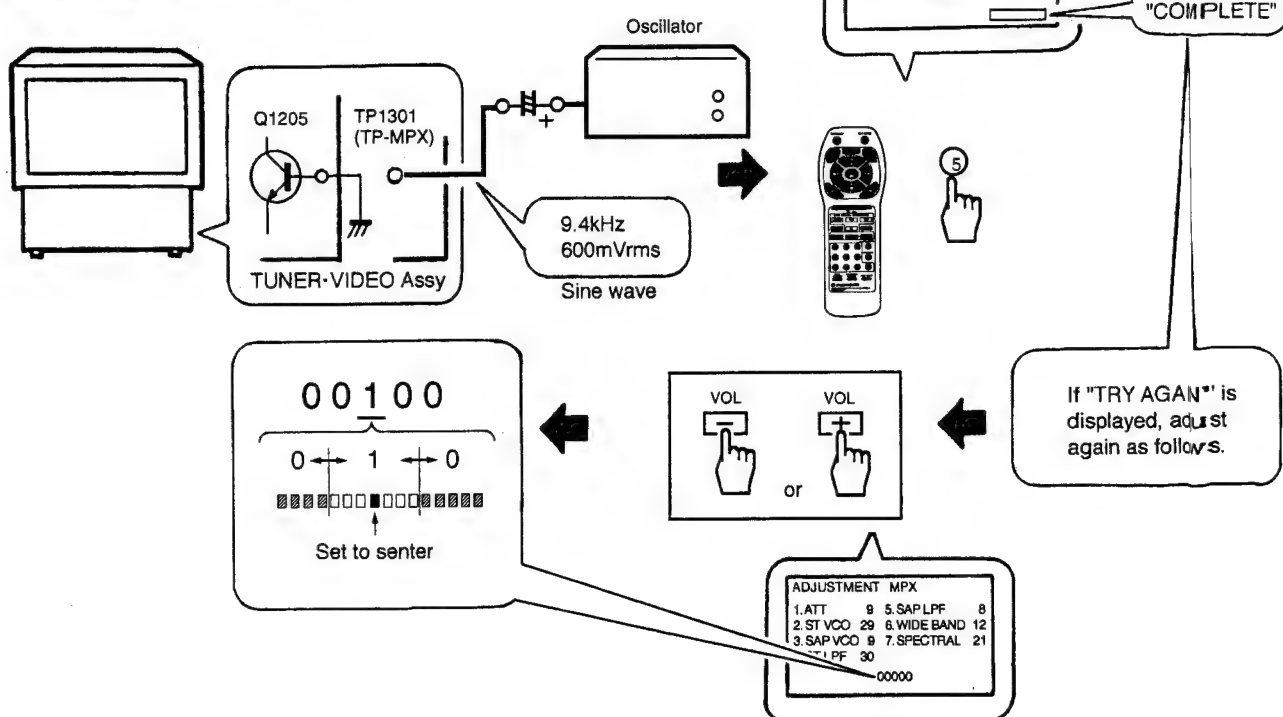
1st FAC



## 12 - 6 SAP LPF adjustment

Start

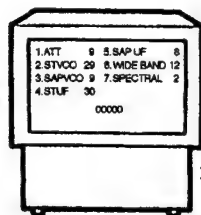
1st FAC



## 12 - 7 Separation adjustment (WIDE BAND)

Start

1st FAC



ANT A

Adjust the output of the TV OUT terminal on the rear panel to the minimum level.

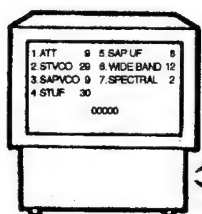
Rch level - Lch input → minimum  
Lch level - Rch input → minimum

RF signal  
Video signal : fV = EIA color-bar, 60dBμV  
Audio signal : fA = 300Hz, 100% MOD, L ch  
(or R ch) only, 54dBμV  
9 ch (fp = 187.25MHz)

## 12 - 8 Separation adjustment (SPECTRAL)

Start

1st FAC



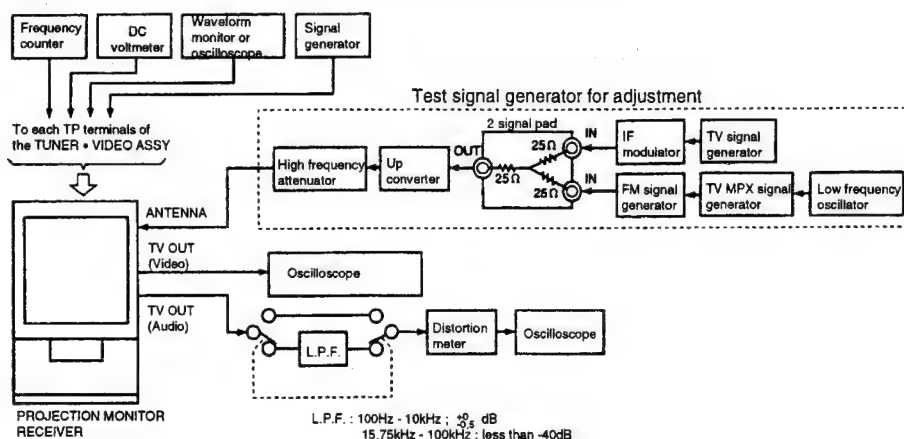
ANT A

Adjust the output of the TV OUT terminal on the rear panel to the minimum level.

Rch level - Lch input → minimum  
Lch level - Rch input → minimum

RF signal  
Video signal : fV = EIA color-bar, 60dBμV  
Audio signal : fA = 300Hz, 100% MOD, L ch  
(or R ch) only, 54dBμV  
9 ch (fp = 187.25MHz)

### ● Connection diagram for adjusting the tuner section:



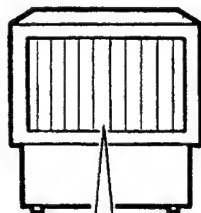
#### Note :

- Repeat step 12-7 and 12-8 till the best separation.
- When performing the separation adjustment, be sure to perform WIDE BAND adjustment first.
- If performing the WIDE BAND adjustment, be sure to perform SPECTRAL adjustment.

### 13 White balance adjustment

Start

1st FAC



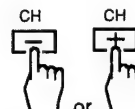
Color bar signal  
without color  
signal

Adjust the DRV-G and DRV-B  
so that the bright part of  
the screen becomes white.

Adjust the CUT-R, CUT-G and  
CUT-B so that the dark part  
of the screen become gray.



8 : DRV-G  
9 : DRV-B



0 : CUT-R  
CH + : CUT-G  
CH - : CUT-B

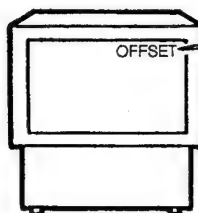
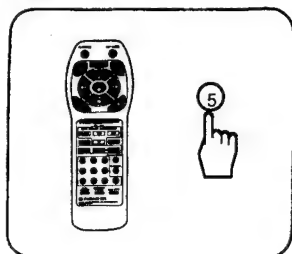
### 14 PIONEER's standard settings

#### 14 -1 Sharpness adjustment

Start

1st FAC

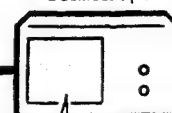
Telop : Blue



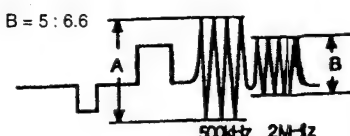
"Multiburst"

TP-47G  
TUNER •  
VIDEO ASSY

Oscilloscope



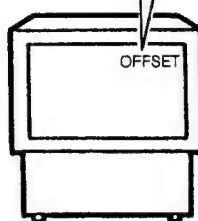
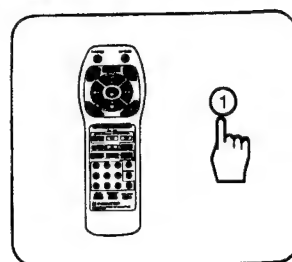
A : B = 5 : 6.6



#### 14 -2 Color adjustment

Start

1st FAC



"Color bar"

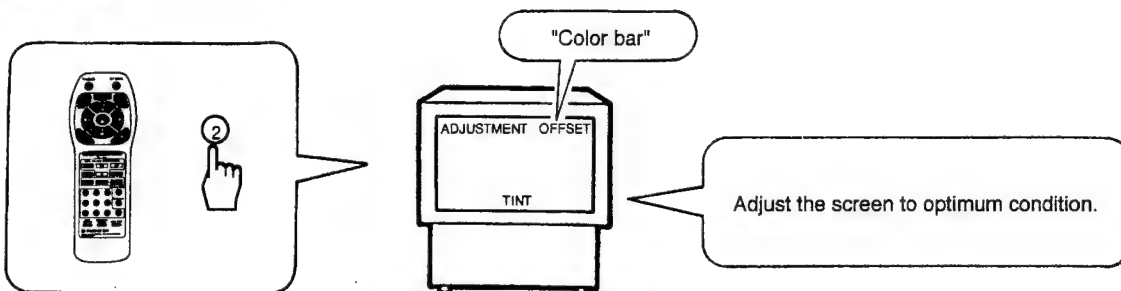
OFFSET

Adjust the screen to optimum condition.

### 14-3 Tint adjustment

Start

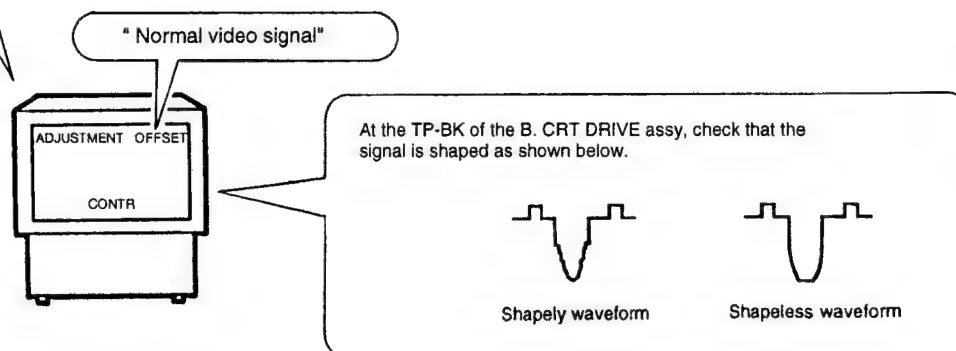
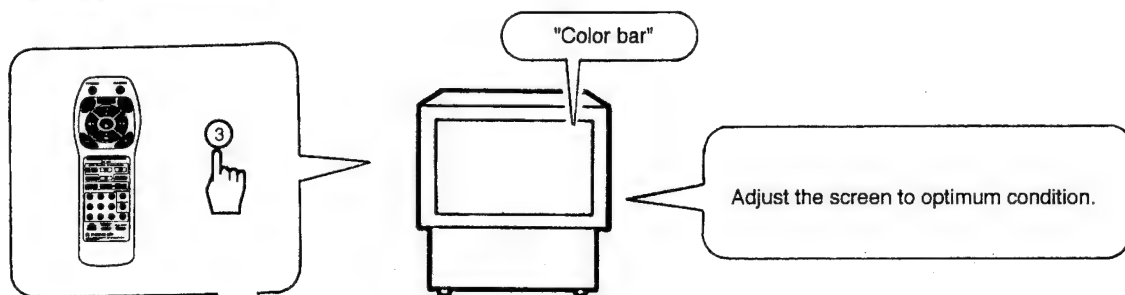
1st FAC



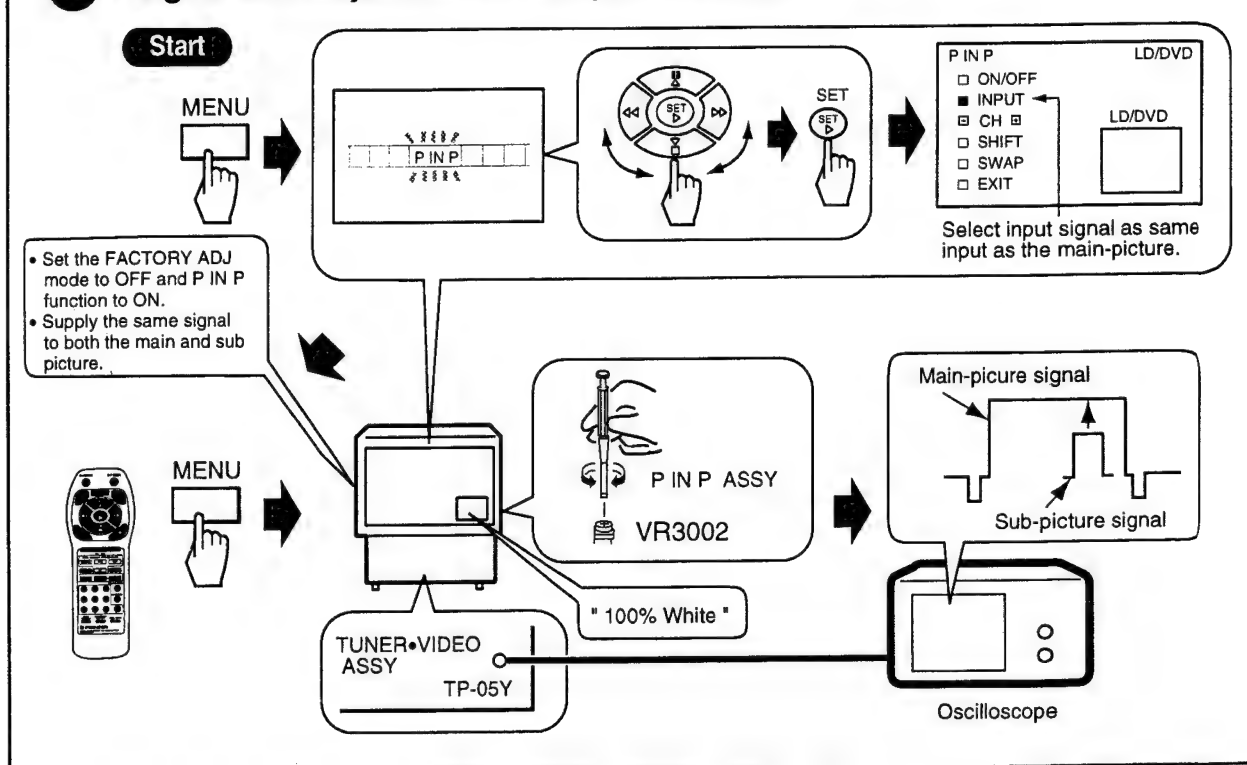
### 14-4 Contrast adjustment

Start

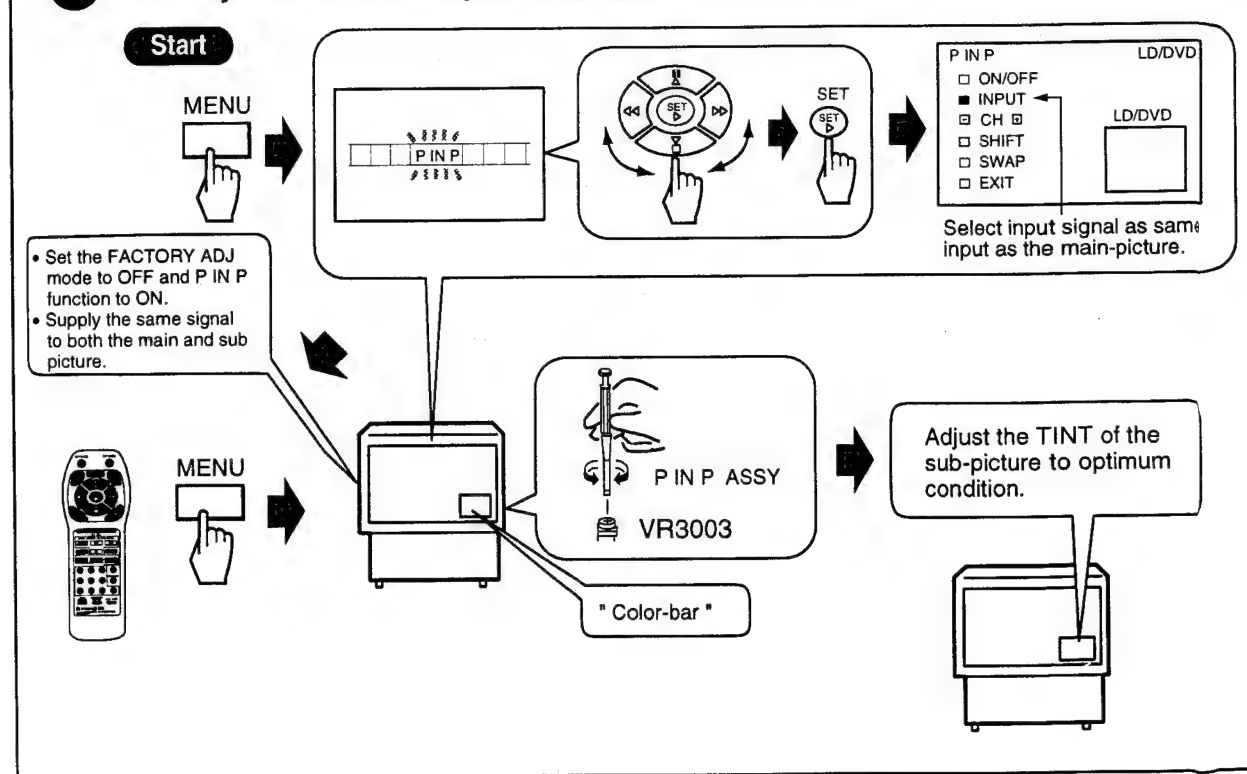
1st FAC



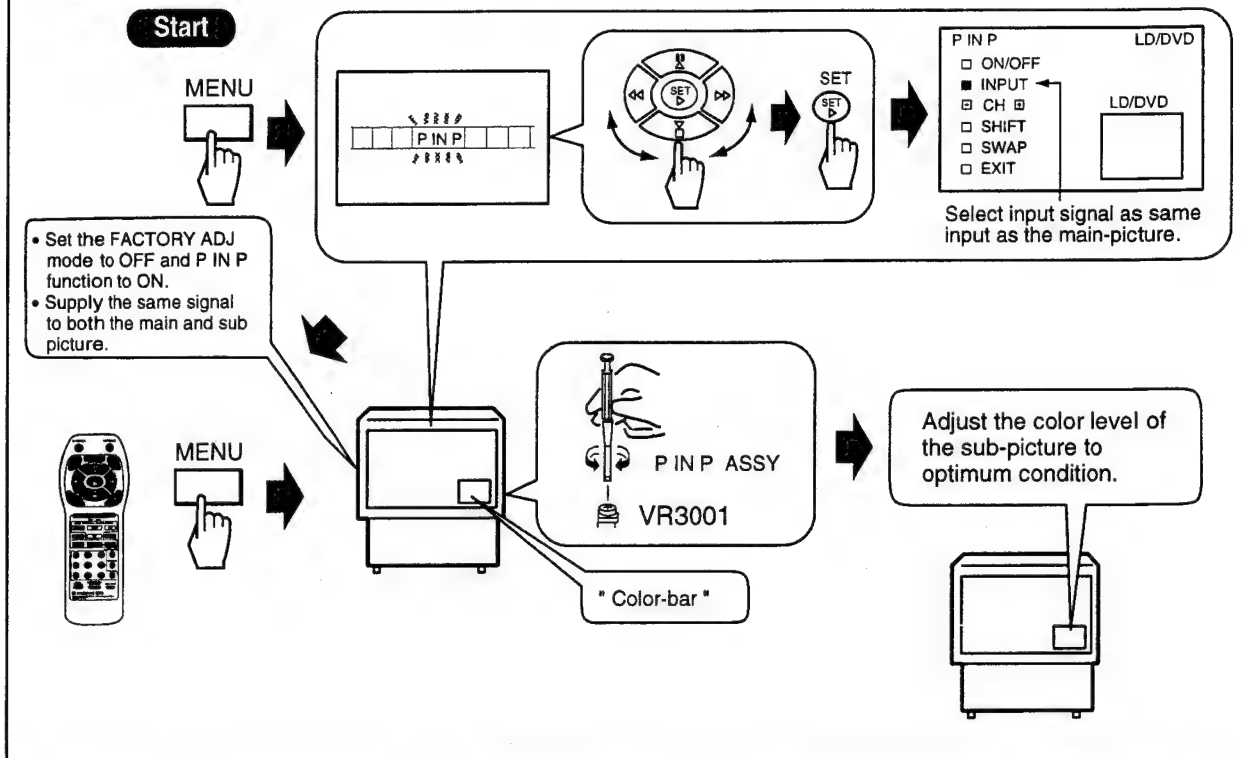
## 15 Y-signal level adjustment of sub-picture (adjustment for P IN P)



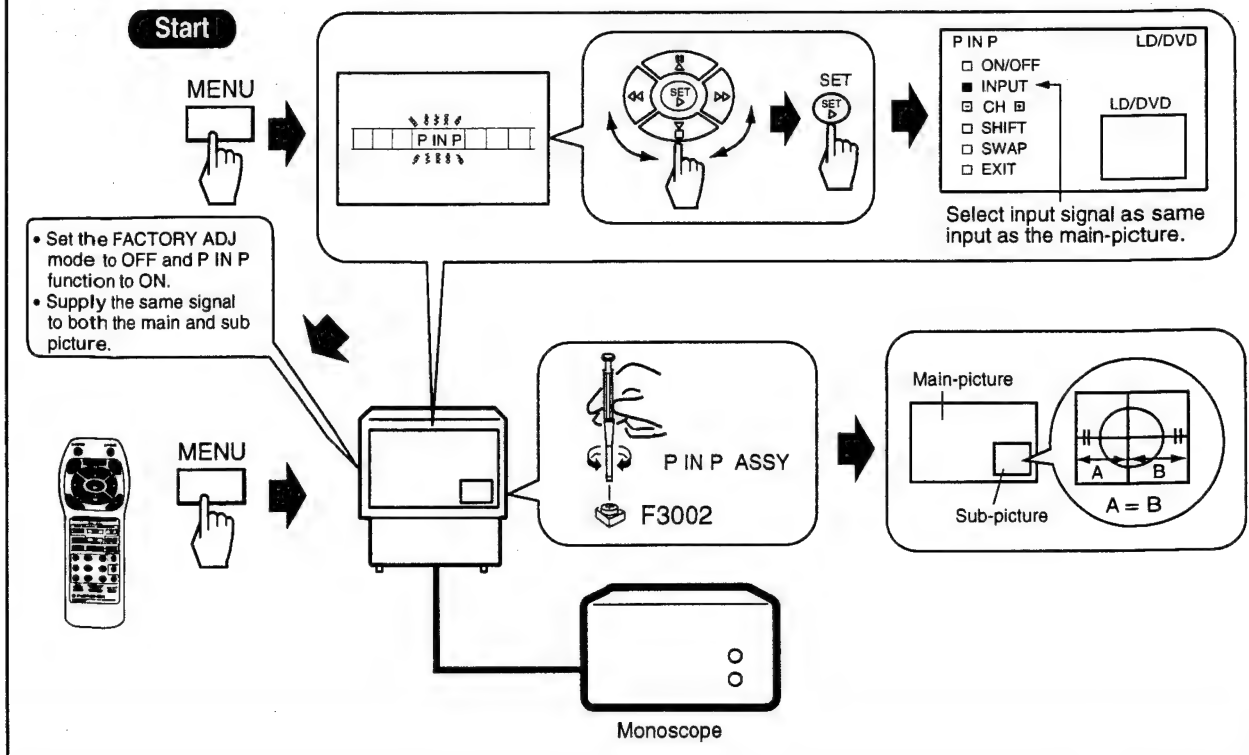
## 16 TINT adjustment of sub-picture (adjustment for P IN P)



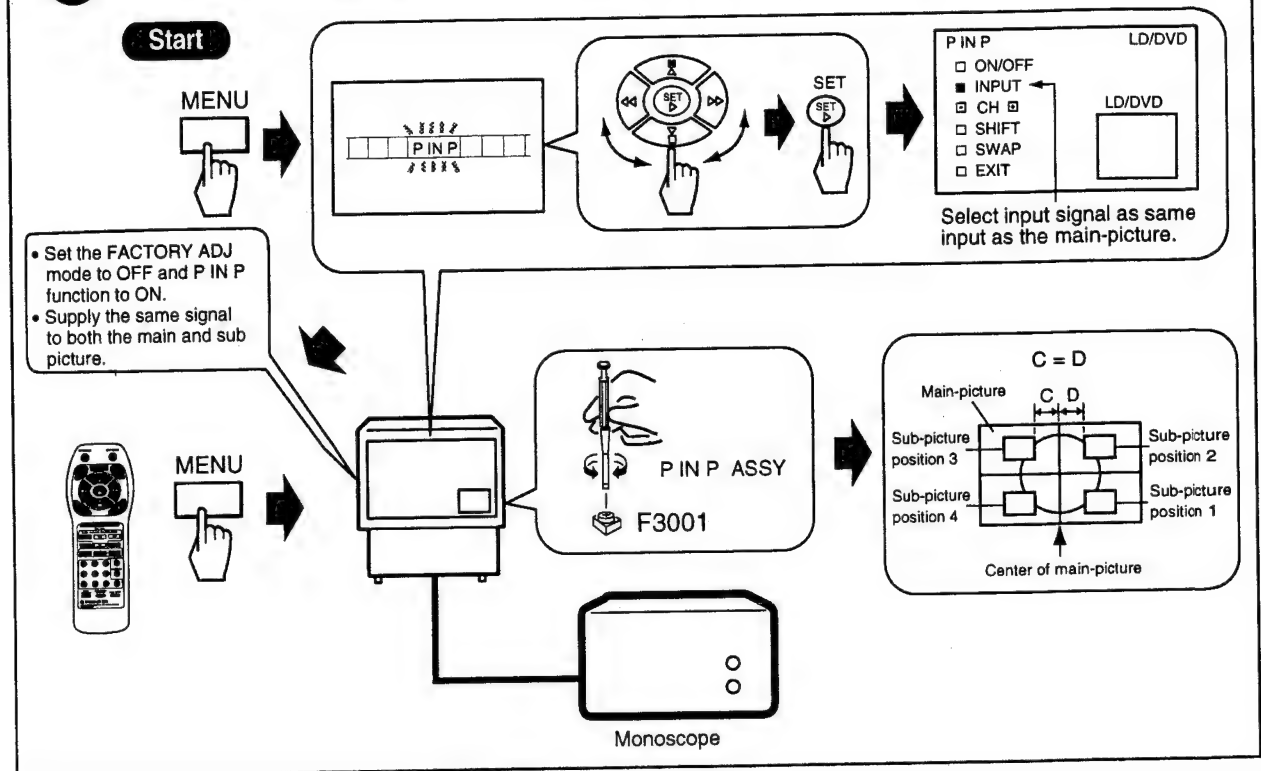
### 17 Color level adjustment of sub-picture (adjustment for P IN P)



**18** Write clock adjustment of sub-picture (adjustment for P IN P)



# 19 Read clock adjustment of sub-picture (adjustment for P IN P)





## 7. GENERAL INFORMATION

### 7.1 REPLACING THE CRT ASSY

#### Serviceman Warning

When replacing the CRT assy, turn off the power, unplug the AC plug and let the unit discharge for more than 1 minute.

The anode cables of the CRT assy R, G, and B in PROJECTION MONITOR RECEIVER are connected in series as shown in Fig. 1.

When replacing the CRT assy, the anode cable have to be cut.

Note: Since the anode cables for the CRT assy to service supplies are only available in half lengths, either cut longer lengths, or join older lengths of cable to ensure that the original cable length is used.

Table 1 Cable disconnecting methods

Cable	Replacement CRT assembly		
	When CRT assy B is replaced	When CRT assy G is replaced	When CRT assy R is replaced
Cable ①	—	—	Disconnect the anode cable from the FBT. (Refer to page 132.)
Cable ②	Leave it as is	Cut a place 20mm from the exact center towards the CRT assy G	Cut a place 20mm from the exact center towards the CRT assy R
Cable ③	Cut a place 20mm from the exact center towards the CRT assy B	Cut a place 20mm from the exact center towards the CRT assy G	Leave it as is

Note: Do not cut other cables by mistake.

#### 7.1.1 WHEN REPLACING THE CRT ASSY

Unplug the AC plug and let the unit discharge for more than 1 minute, then cut the anode cable according to table 1.

Each CRT assy supplied as a spare part is as shown below.

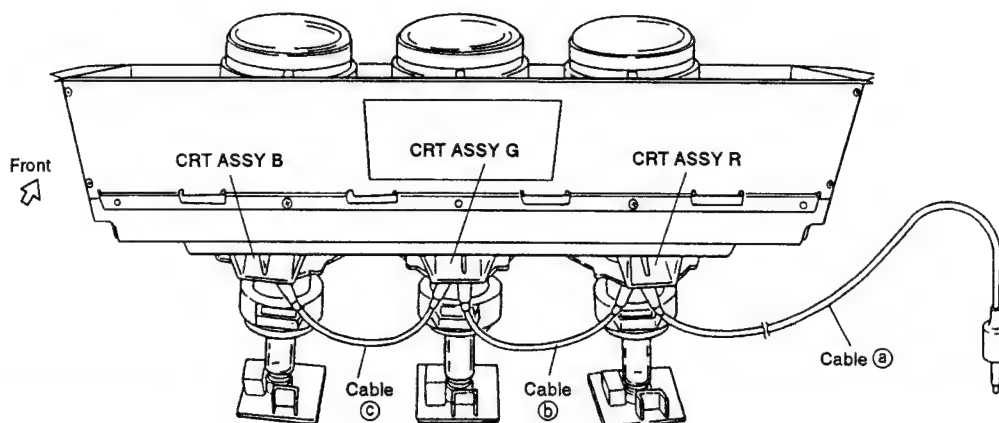
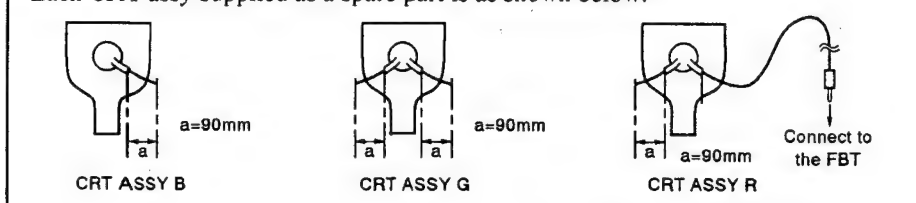
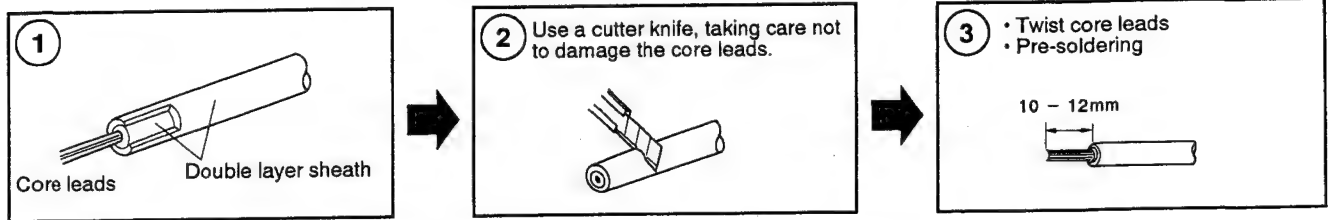


Fig. 1 Connection diagram of the each CRT assemblies

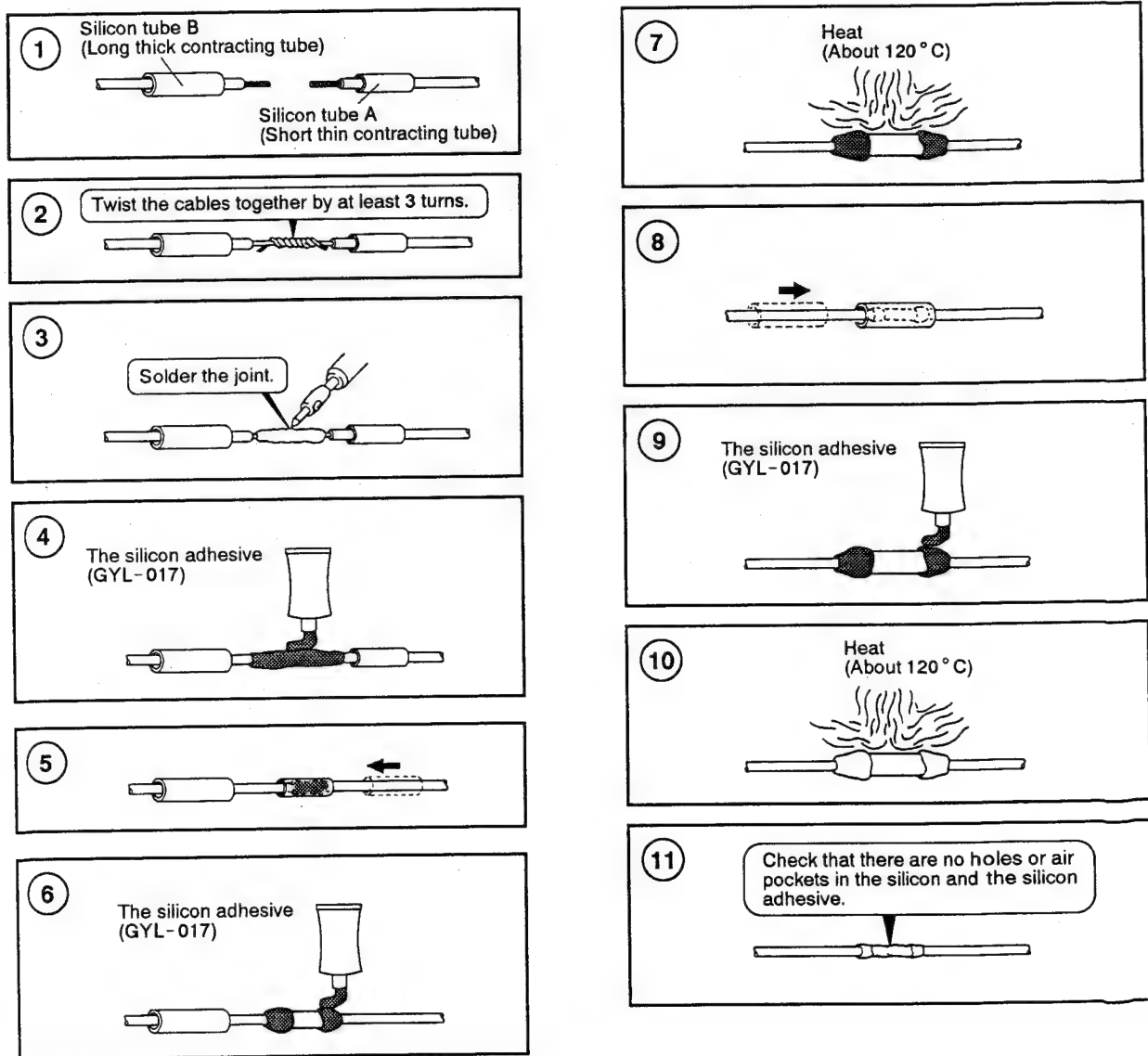
### 7.1.2 ANODE CABLE STRUCTURE AND SHEATH PEELING



### 7.1.3 ANODE CABLE JOINING PROCEDURE

The silicon tube is packed with CRT ASSY. For the silicon adhesive, be sure to use silicon adhesive part number GYL-017.

- **CAUTION** When connecting the anode cable, pay attention to the following.
- Take care not damage the anode cable sheath.
- Insulate the cable leads from other parts using the silicon adhesive and the silicon tube.
- Apply the silicon adhesive so that there are no air gaps.



## 7.2 WIRING DIAGRAM

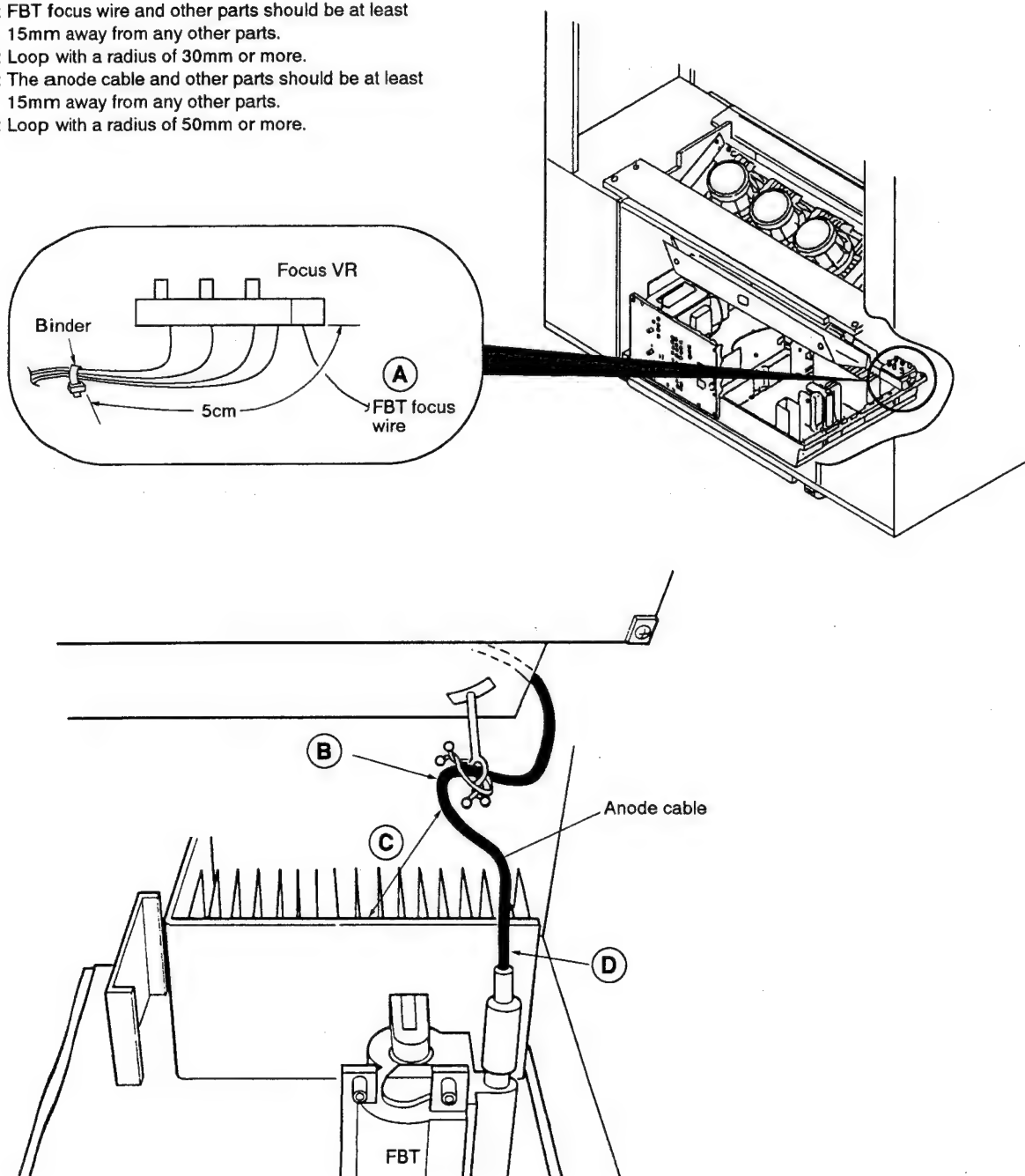
Reconnect any disconnected lead wires of the Projection monitor receiver.

The important points for connection of the lead wires are as shown below.

You may find that they were connected differently. Be sure reconnect the lead wires as they were.

Note :

- Ⓐ : FBT focus wire and other parts should be at least 15mm away from any other parts.
- Ⓑ : Loop with a radius of 30mm or more.
- Ⓒ : The anode cable and other parts should be at least 15mm away from any other parts.
- Ⓓ : Loop with a radius of 50mm or more.



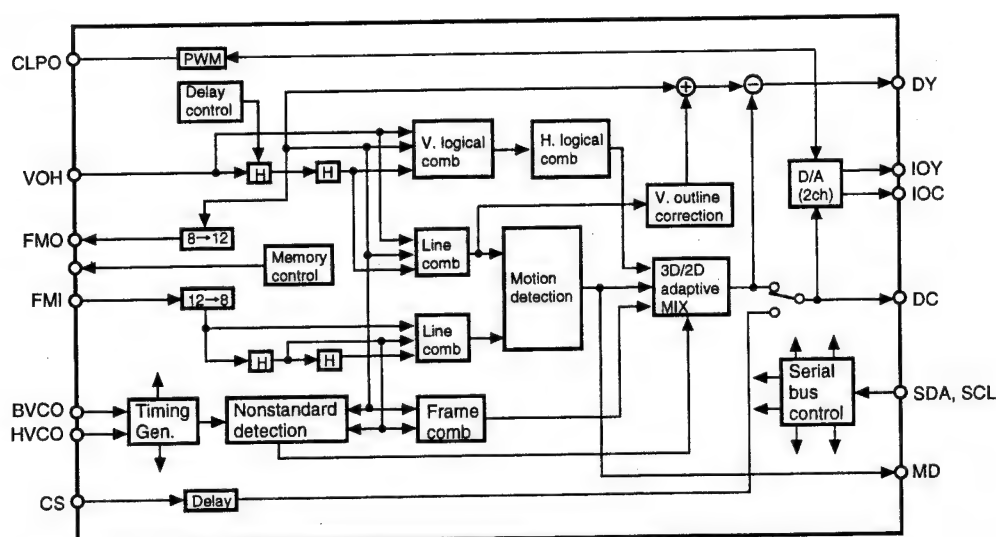
## 7.3 IC INFORMATION

- The information in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

### ■ UPD6487GF3BA (3D Y/C ASSY : IC3505)

#### ● 3D Y/C SEPARATION LSI

#### ● Block Diagram



#### ● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	DGND	—	Ground for digital section	20	FMO11	O	Frame delayed output (12 bit) for external field memory
2	CS7	I	Input chroma signal at separate input mode. Connect to GND at not used.	21	FMO10		
3	CS6			22	FMO9		
4	CS5			23	FMO8		
5	CS4			24	FMO7		
6	CS3			25	FMO6		
7	CS2			26	FMO5		
8	CS1			27	FMO4		
9	CS0			28	FMI11	I	Frame delayed input (12 bit) for external field memory
10	ADCK	O	Clock output for A/D converter	29	FMI10		
11	CLPO	O	Clamp D/A output for A/D converter PWM output for the differential of clamp level (64) and video pedestal level. Pulse width is charged between 1/16 and 15/16.	30	DGND	—	Ground for digital section
12	VOH7	I	Input composite video signal which was A/D converted by 8 bit. In the separate input mode, input luminance signal.	31	DVDD	—	Power supply for digital section
13	VOH6			32	FMI9	I	Frame delayed input (12 bit) for external field memory
14	VOH5			33	FMI8		
15	VOH4			34	FMI7		
16	VOH3			35	FMI6		
17	VOH2			36	FMI5		
18	VOH1			37	FMI4		
19	VOH0			38	MRSB	O	Reset pulse output for external field memory with active low. Connect the write/read reset pin of UPD2280V-30.

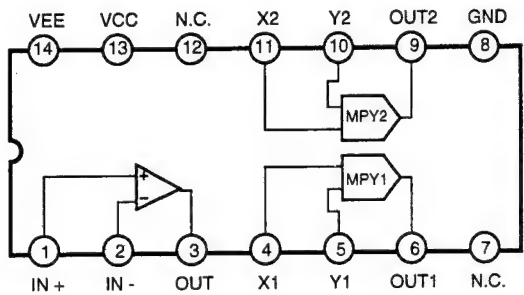
# PRO-119, PRO-99

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
39	MRS	O	Reset pulse output for external field memory with active high	70	DY1	O	Separated luminance signal output with 9 bit digital straight binary
40	MWCK	O	Memory write clock output	71	DY2		
41	MRCK	O	Use for writing clock of memory which is connected to external.	72	DY3		
42	FMO3	O	Frame delayed output (12 bit) for external field memory	73	DY4		
43	FMO2			74	DY5		
44	FMO1			75	DY6		
45	FMO0			76	DY7		
46	FNI3	I	Frame delayed input (12 bit) for external field memory	77	DY8	O	Non standard detection monitor output (Standard : L, Non standard : H)
47	FMI2			78	VTR		
48	FMI1			79	CTL	I	Control input. Select the pin function by CTLS (SA14:D7) of serial bus. Becomes luminance NR mode by CTLS=0 : CTL pin = H. Becomes forced 2D Y/C separation by CTLS:1 : CTL pin = H.
49	FMI0			80	DGND	—	Ground for digital section
50	DVDD	—	Power supply for digital section	81	HVCO	I	Input 910fH line lock clock When using the system for Y/C searation mode fixed (YCMD=1), connect the GND.
51	DGND	—	Ground for digital section	82	DVDD	—	Power supply for digital section
52	MD0	O	4 bit motion detection signal output with delayed by 1H + 21 clocks	83	HPD	O	Output the phase difference as compared HSS pin input with HREF output
53	MD1			84	DGND	—	Ground for digital section
54	MD2			85	HREF	O	Output the reference signal for line lock clock generating PLL
55	MD3			86	HSS	I	H. sync. signal input
56	SCL	—	I <sup>2</sup> C bus serial clock input	87	AGND	—	Ground for analog (D/A) section
57	SDA	I	I <sup>2</sup> C bus serial data input	88	IOC	O	Chroma signal analog output
58	TES1	I	I <sup>2</sup> C bus interface initialize input When set to High level, initialize the I <sup>2</sup> C bus interface and open the SDA line. During Hi-level period, bus is not accept the signal.	89	AVDD	—	Power supply for analog (D/A) section
59	TES2	I	Normally, connect to GND	90	IREF	O	Output the reference current of D/A
60	DC0	O	Separated chroma signal output with 9 bit digital straight binary	91	VREF	V	Input the reference voltage of D/A
61	DC1			92	COMP	O	Connect a capacitor for D/A phase compensation
62	DC2			93	AVDD	—	Power supply for analog (D/A) section
63	DC3			94	IOY	O	Luminance signal analog output
64	DC4			95	AGND	—	Ground for analog (D/A) section
65	DC5			96	VDI	I	V. sync. pulse which is sync. seoarated input with active low
66	DC6			97	CLPI	I	Clamp pulse input with active high
67	DC7			98	KIL	I	Killer input with active high
68	DC8			99	DVDD	—	Power supply for digital section
69	DY0	O	Separated luminance signal output with 9 bit digital straight binary	100	BVCO	I	4 fsc input of burst lock clock

■ CA0007AM (FULL CINEMA CONVER ASSY : IC6801)  
(CONVERGENCE ASSY : IC2323)

• DUAL ANALOG MULTIPLIER

● Block Diagram

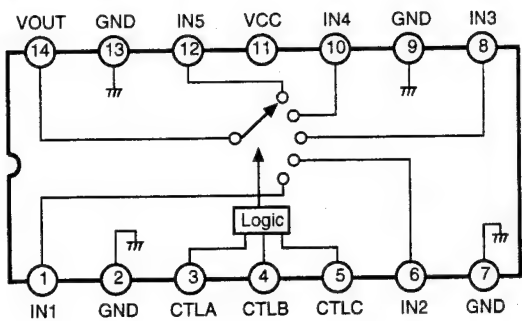


● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	IN +	I	OP amp. non-inverting input	8	GND	—	Ground
2	IN -	I	OP amp. inverting input	9	OUT2	O	MPY2 output
3	OUT	O	OP amp. output	10	Y2	I	Y input of MPY2
4	X1	I	X input of MPY1	11	X2	I	X input of MPY2
5	Y1	I	Y input of MPY1	12	N.C.	—	Non connection
6	OUT 1	O	MPY1 output	13	VCC	—	Power supply pin
7	N.C.	—	Non connection	14	VEE	—	Power supply pin

■ BA7649A (AV I/O ASSY : IC1503)  
• VIDEO SIGNAL SWITCH

● Block Diagram

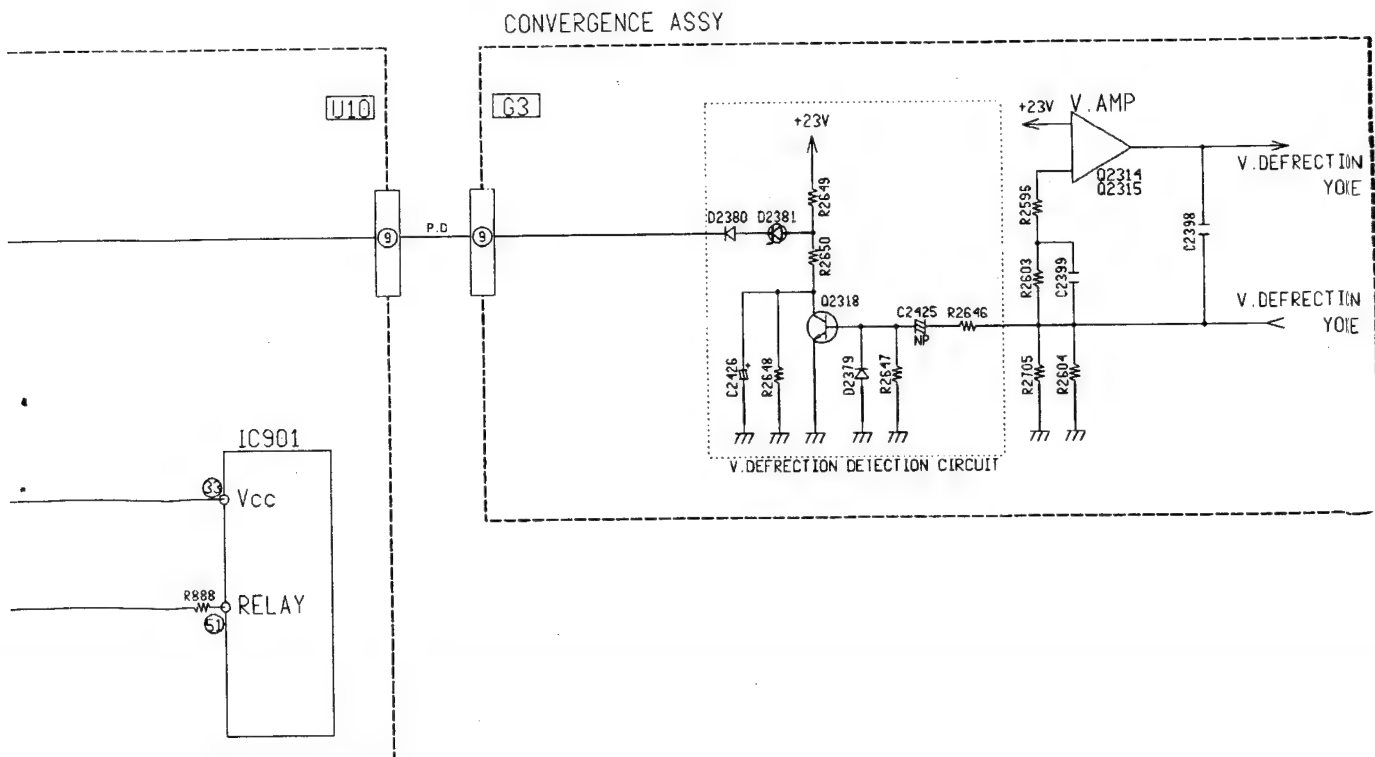
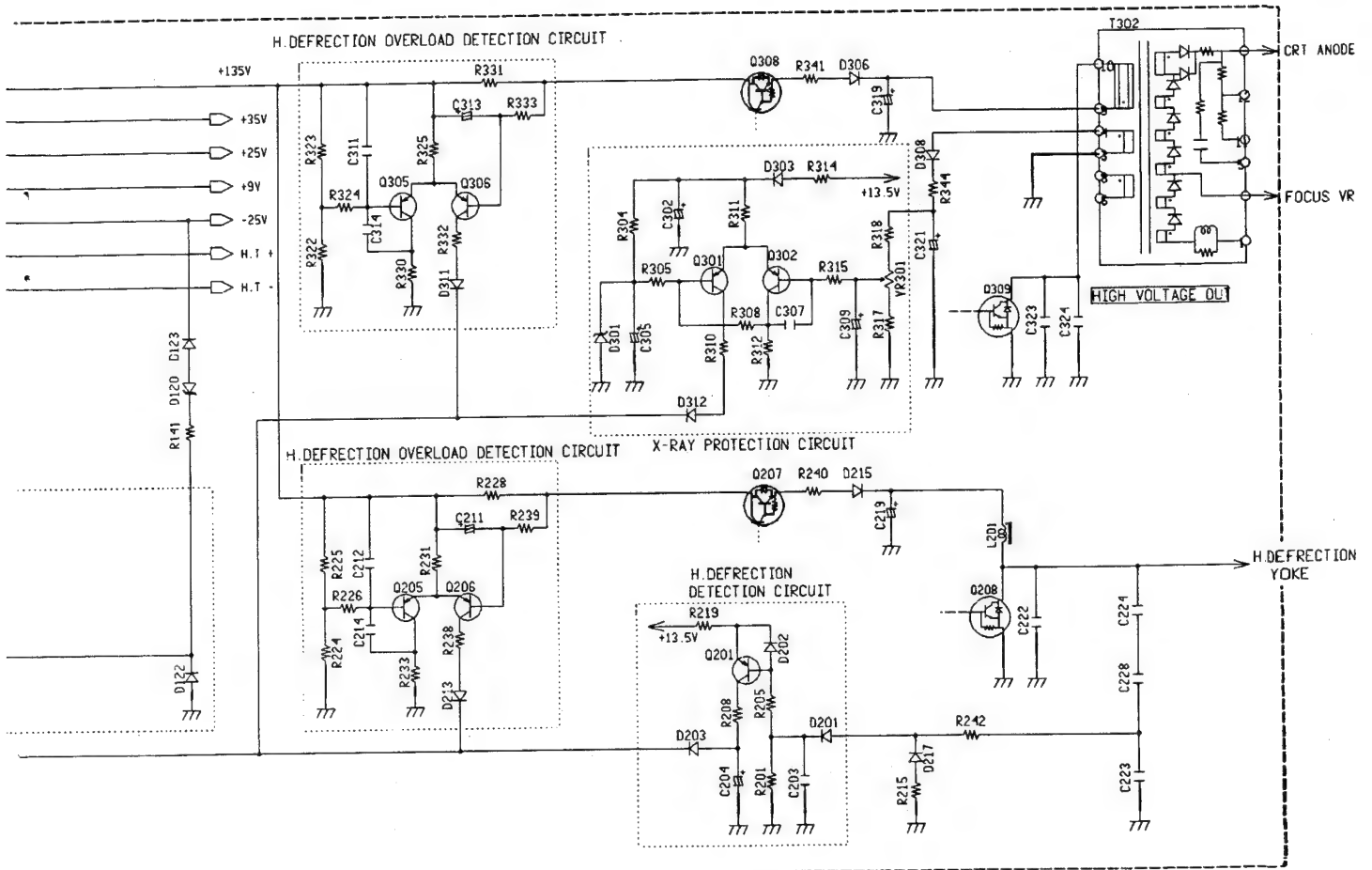


● Truth Table

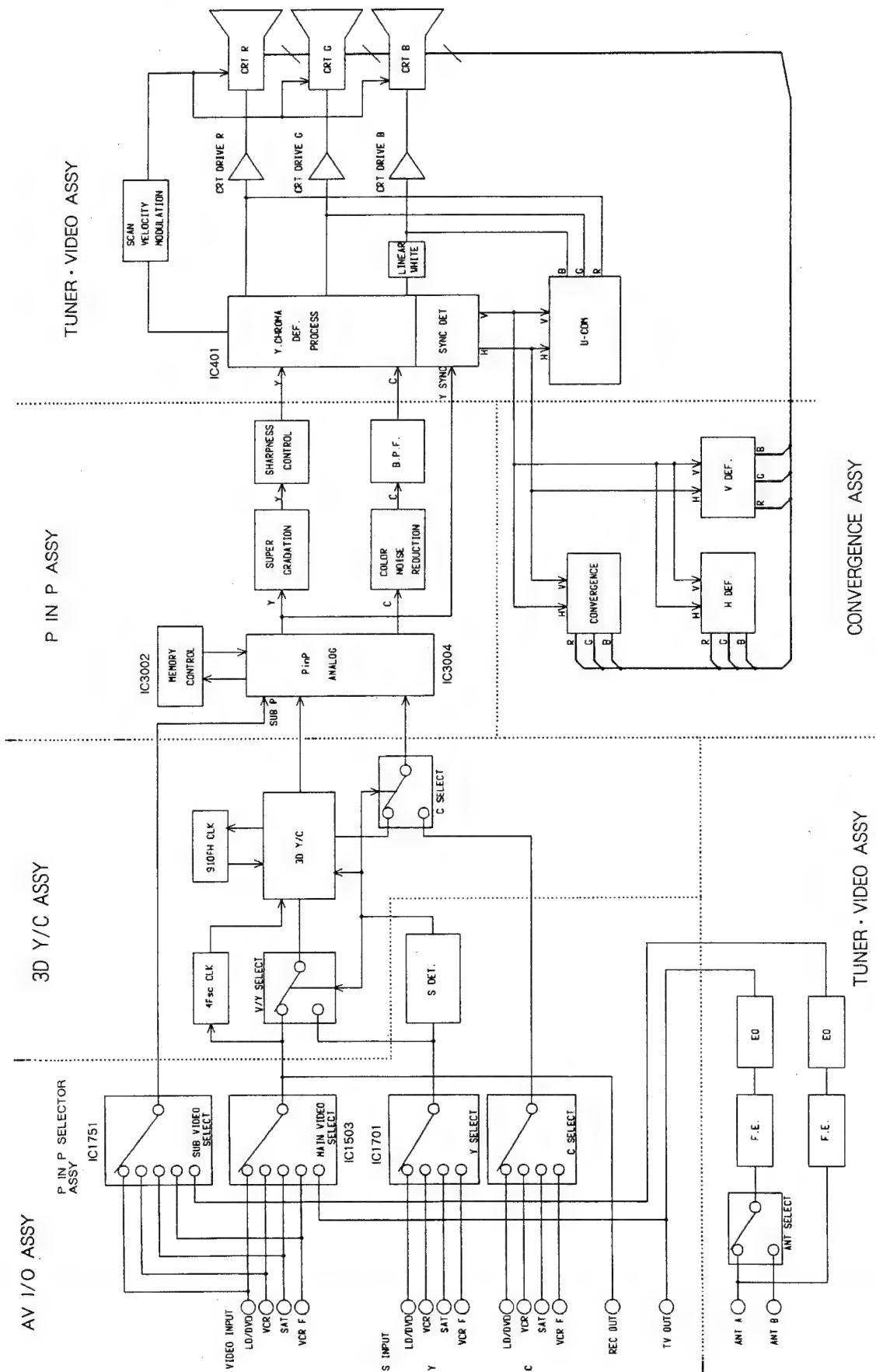
CTL- A	CTL- B	CTL- C	OUT
L (OPEN)	L (OPEN)	L (OPEN)	IN1
L (OPEN)	H	L (OPEN)	IN2
H	L (OPEN)	L (OPEN)	IN3
H	H	L (OPEN)	IN4
.	.	H	MUTE(IN5)



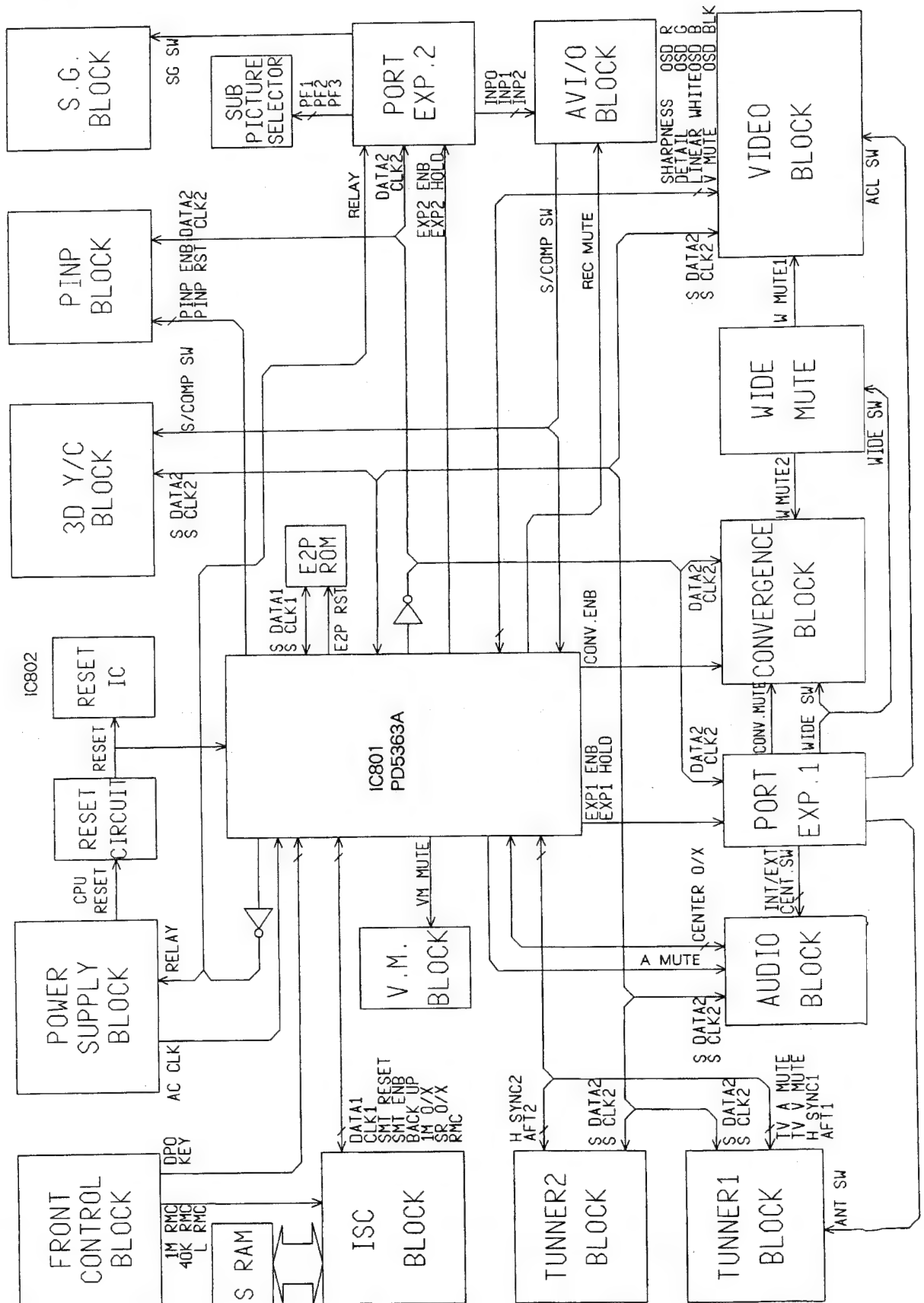




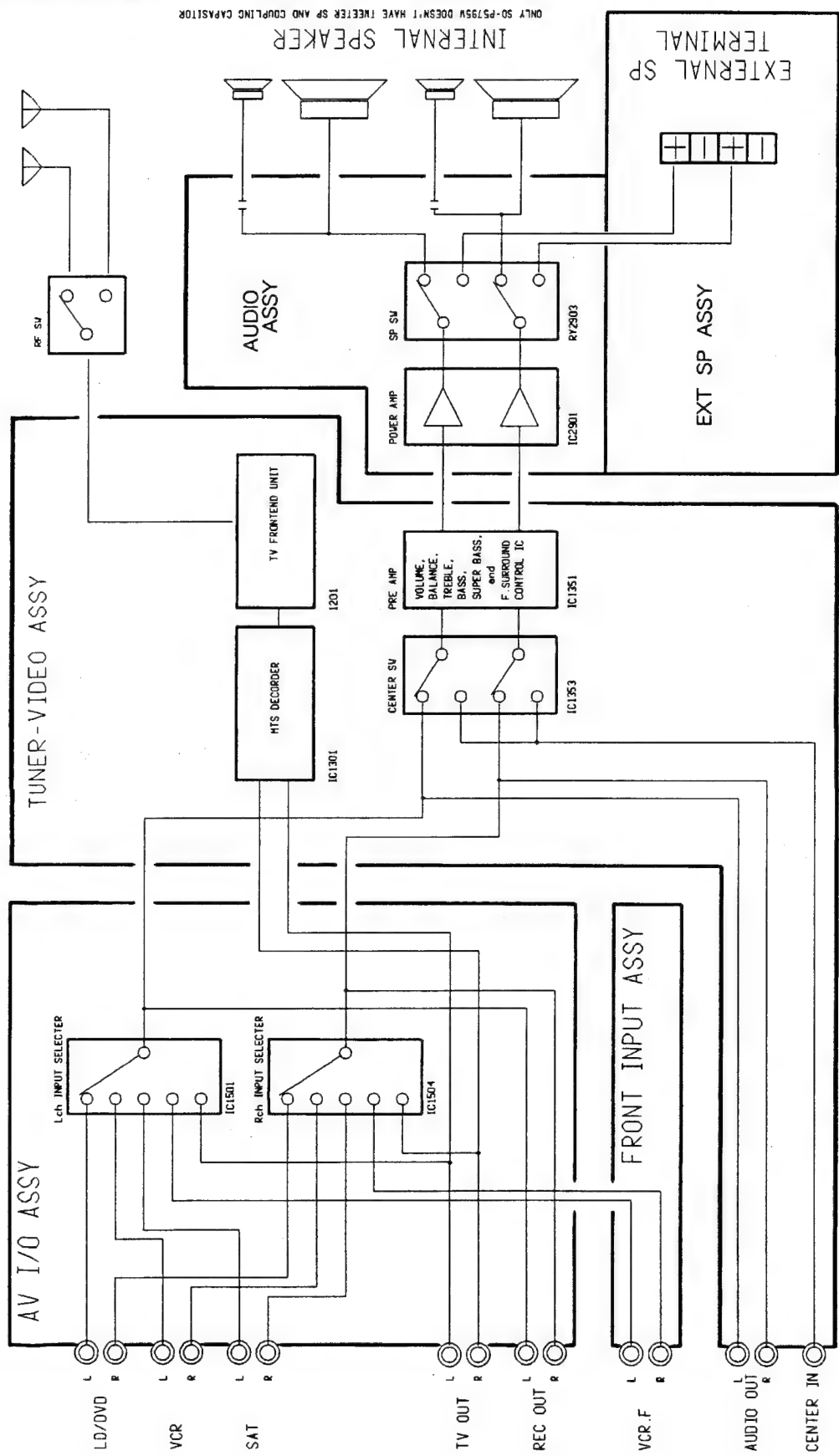
# 7.4 2 Video Block



### 7.4.3 UCOM Block



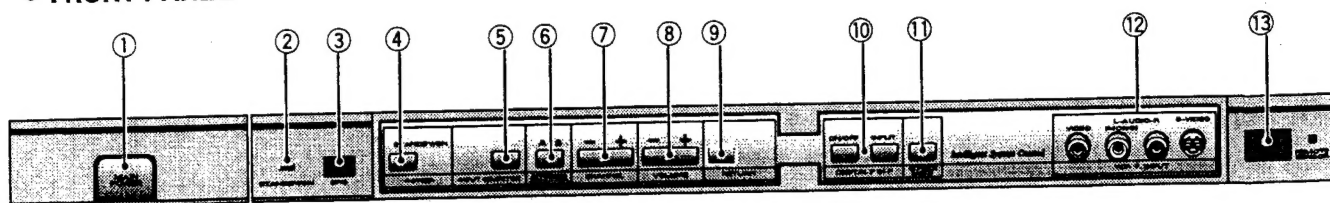
7.4.4 Audio Block



## 8. PANEL FACILITIES AND SPECIFICATIONS

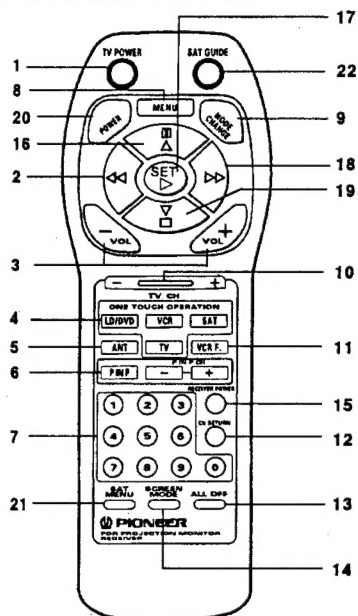
### 8.1 PANEL FACILITIES

#### • FRONT PANEL



- ① **MAIN POWER switch** : Turns ON/OFF the TV power.
- ② **STANDBY ON indicator** : Displays the power state. (Red:STANDBY, Green:ON)
- ③ **DPO sensor** : Sensor to detect the room brightness.
- ④ **POWER STANDBY/ON switch** : Turns the TV power to ON or STANDBY state.  
**ON:** When set to the ON position, power is supplied and the unit becomes operational.  
**STANDBY:** When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.
- ⑤ **INPUT SELECTOR button** : Input is switched each time this button is pressed.  
 TV → LD/DVD → VCR → SAT → VCR F. (Front)  
 ↑
- ⑥ **ANTENNA SELECTOR button** : Switches between ANTENNA-A and ANTENNA-B.
- ⑦ **CHANNEL buttons** : Switches channels.
- ⑧ **VOLUME buttons** : Adjusts the volume.
- ⑨ **RETURN button** : Returns to the initial setting condition.  
 Press when picture or sound disappears while adjusting picture quality or sound quality.  
 When the RETURN button is pressed, all settings will be cleared. Set from the beginning again.
- ⑩ **DIGITAL P IN P buttons**  
**ON/OFF** : Turns the P IN P function ON/OFF.  
**INPUT** : Switches the input source of the slave screen.
- ⑪ **SCREEN MODE button** : Switches screen modes. (NORMAL CINEMA ↔ FULL CINEMA)
- ⑫ **VCR F. (front) input terminal** : Connects to the video camera, etc.
- ⑬ **REMOTE SENSOR** : Receives the remote control signal.

## • REMOTE CONTROL UNIT



### TV CONTROL BUTTONS

- 1 **TV POWER button**
- 2 **Select / Adjust / Set buttons**
- 3 **VOLUME button**
- 4 **ONE TOUCH OPERATION buttons (LD/DVD, VCR, SAT, TV)**  
When one of these buttons is pressed, the button will light up in red for several seconds, the input will be switched, enabling ONE TOUCH OPERATION to be performed.
- 5 **ANT (antenna) selector button**
- 6 **P IN P operation buttons**
- 7 **Number buttons**
- 8 **MENU button**
- 9 **MODE CHANGE button**  
Switches the operation mode (LD/DVD, VCR, SAT, TV) of the remote control unit.  
(The ONE TOUCH OPERATION button lights up.)
- 10 **TV CH (channel) button**
- 11 **VCR F (front) button**  
Press to watch the source connected to the VCR F. INPUT terminal on the front panel.
- 12 **CH RETURN button**
- 13 **ALL OFF button**  
Turns OFF the powers of the TV and selected input source together.
- 14 **SCREEN MODE button**

### RECEIVER CONTROL BUTTONS

- 3 **VOLUME button**  
Adjusts the volume of the receiver.  
This button can be used only when AUDIO TV/SYS is switched to "SYS".
- 15 **RECEIVER POWER button**  
Turns the power of the receiver on and off.

**NOTE:**  
Preset the RECEIVER remote control signal according to REMOTE CODE SET UP.

### LD/DVD CONTROL BUTTONS

Press the MODE CHANGE button or ONE TOUCH OPERATION LD/DVD button and switch the remote control unit operation mode to LD/DVD.

- 1 **POWER button**  
Turns the power of the LD/DVD player on and off.
- 2 **◀◀ (chapter search)/▶▶ (scan) button**  
Pressing quickly once takes you to the start of the chapter currently playing. Each time you press it, you move back to the start of the previous chapter. Continue pressing to scan.
- 16 **⏸ (pause/still) button**  
Set pauses and still pictures.
- 17 **▶ (play) button**  
Selects playback.

- 18 **▶▶ (chapter search)/▶▶ (scan) button**  
Pressing quickly once takes you to the start of the next chapter. Each time you press it, you move ahead to the start of the next chapter. Continue pressing to scan.

- 19 **■ (stop) button**  
Playback is stopped when pressed once.

**NOTE:**  
Preset the LD/DVD remote control signal according to REMOTE CODE SET UP.

### VCR CONTROL BUTTONS

Press the MODE CHANGE button or ONE TOUCH OPERATION VCR button and switch the remote control unit operation mode to VCR.

- 1 **POWER button**  
Turns the power of the VCR on and off.
- 2 **◀◀ (rewind) button**  
Rewinds the tape and arrows picture search.
- 16 **⏸ (pause/still) button**  
Set pauses and still pictures.
- 17 **▶ (play) button**  
Selects playback.
- 18 **▶▶ (fast forward) button**  
Rapidly advances the tape and arrows picture search.
- 19 **■ (stop) button**  
Stops the tape transport.

**NOTE:**  
Preset the VCR remote control signal according to REMOTE CODE SET UP.

### SAT CONTROL BUTTONS

Press the MODE CHANGE button or ONE TOUCH OPERATION SAT button and switch the remote control unit operation mode to SAT.

- 20 **POWER button**  
Turns the power of the satellite broadcasting tuner on and off.
- 7 **Number button\***  
Selects the channel.
- 21 **SAT MENU button**  
Turns ON/OFF satellite broadcasting menu.
- 22 **SAT GUIDE button**  
Turns ON/OFF satellite broadcasting information.
- 2,16, 18,19 **◀ ▶ ▲ ▼ button**  
Press to select items on the menu screen.
- 17 **SET button**  
Use to execute menu items.
- 12 **CH RETURN button\***  
Use to alternately switch the current channel and previous channel.

**NOTE:**  
Preset the SAT remote control signal according to REMOTE CODE SET UP.

\* **NOTE:**  
The 2 and 7 buttons function when the TV input is SAT and SAT CONTROL has been switched to ON.

### CABLE BOX CONTROL BUTTONS

Switch the CABLE TV/SYS setting to "SYS", and press the MODE CHANGE button or ONE TOUCH OPERATION TV button and switch the remote control unit operation mode to TV.

- 20 **POWER button**  
Turns the power of the CABLE BOX on and off.
- 7 **Number button**  
Selects the channel.
- 10 **CH (channel) button**  
Selects the channel.
- 12 **CH RETURN button**  
Use to alternately switch the current channel and previous channel.

**NOTE:**  
Preset the CABLE BOX remote control signal according to REMOTE CODE SET UP.

## 8.2 SPECIFICATIONS

### Display section

Reception system American TV standard NTSC system

Screen size ..... 60" (PRO-119)  
51" (PRO-99)

CRT ..... 7" High focus CRT × 3

Brightness (White peak) ..... 400 Foot-Lambert (PRO-119)  
550 Foot-Lambert (PRO-99)

[100 % Window signal input contrast, bright Max.]

Horizontal resolution ..... 1000 lines  
[Input digital test pattern (1000 lines resolution)]

Input terminals ..... 4 video input systems,  
4 S-VIDEO input jacks (Y/C separate INPUT)  
4 audio input systems

Output terminals ..... REC OUTPUT (To VIDEO)  
Video output, audio output (For recording) × 1

Input signal Video signal: 1.0 Vp-p ± 0.2 V (75 Ω load)  
Audio signal: 500 mV rms

Input impedance ..... Video input: 75 Ω ± 10 %  
Audio input: 22 kΩ or more

Input signal polarity ..... Synchronized negative

Output terminal signal ratings:

Output terminals  
(VIDEO) ..... Video signal: 1 Vp-p (75 Ω load)  
Audio signal: 500 mV rms (100 % modulation)

Output impedance ..... Video output: 75 Ω ± 10 %  
Audio output: Less than 1 kΩ

### Tuner section

**Circuit type** ..... Video signal detection:  
PLL full synchronous detection  
PLL digital synthesizer system  
Audio multiplex: BTSC system

**Reception channels** VHF; CH2 to CH13, UHF; CH14 to CH69  
CATV (STANDARD, AIR, IRC or HRC)  
CATV 1 to 125 CH

**Antenna terminals** ..... Antenna terminal, 75 ohms UNBAL,  
F-type connector (VHF, UHF MIXED)

### Amplifier section

**Effective output**

Front both channels driven ..... 10 W + 10 W

Built-in speaker system ..... 16 cm (6-1/2 in) x 2  
6 cm (2-3/8 in) x 2

### Electrical section, miscellaneous

Power requirements .....	120 V AC, 60 Hz
Power consumption .....	280 W, 480 VA (CSA)
External dimensions	
PRO-119 .....	1361 (W) × 655 (D) × 1429 (H) mm 53-9/16 (W) × 25-3/4 (D) × 56-1/4 (H) in
PRO-99 .....	1170 (W) × 600 (D) × 1302 (H) mm 46-1/16 (W) × 23-5/8 (D) × 51-1/4 (H) in
Weight of main unit	
PRO-119 .....	121 kg (266 lb 13 oz)
PRO-99 .....	104 kg (229 lb 5 oz)

### Wireless remote control unit

Operation system ..... Infrared remote control system

Power source ..... Two DURACELL® "AA" MN1500 1.5 V  
alkaline dry cell batteries

Dimensions ..... 60 (W) × 43.8 (H) × 183 (D) mm  
2-3/8 (W) × 1-23/32 (H) × 7-7/32 (D) in

Weight ..... 129 g (5 oz) (without batteries)

## Accessories

Operating instructions .....	1
Warranty card .....	1
Remote control unit .....	1
DURACELL® "AA" MN1500 1.5 V alkaline dry cell batteries .....	2
Protective screen .....	1
Frame cover V .....	2
Frame cover H .....	2
Frame cover attaching screw .....	12 + 12 (PRO-119) 8 + 8 (PRO-99)
Main repeater .....	1
Mini repeater .....	1

**NOTE:**

*Specifications and design are subject to possible modifications without notice due to improvements.*



